

January • 1958

M

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M

Metal

Products

Manufacturing

including finish

SERVING THE

Appliance AND

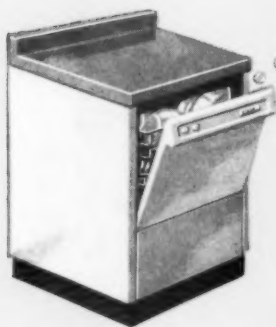
FABRICATED METAL PRODUCTS INDUSTRY

FROM RAW METAL TO FINISHED PRODUCT

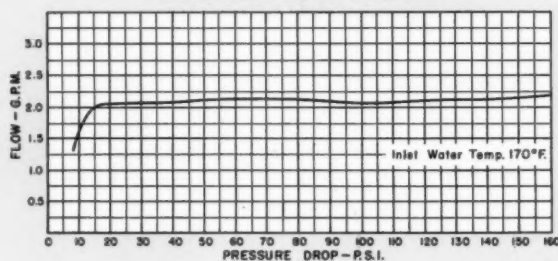
NEW DETROIT Constant Flow Water Control Valve

An improved valve design offering these important advantages for dishwashers and other equipment:

- ★ Positive opening and closing at pressures up to 200 P.S.I.
- ★ Constant predetermined flow at outlet of valve.
- ★ Standard dishwasher and washing machine flow rates. Others on application. Also supplied without flow control.
- ★ Integral inlet strainer.
- ★ Built-in water hammer protection optional.
- ★ Forged brass body — available with choice of connections.
- ★ Equally efficient for hot or cold water service.
- ★ For all standard voltages.



TYPICAL FLOW CURVE



Detroit Controls Division of American-Standard, 5900 Trumbull Avenue, Detroit 8, Michigan.



AMERICAN-Standard

DETROIT CONTROLS DIVISION



It takes a tightly-adherent zinc coating to stay intact through the fabrication of these meter box parts. That's why the manufacturer uses Armco ZINCGRIP Steel.

When You Use Armco ZINCGRIP Steel:

SEVERELY-WORKED PARTS STAY ZINC-PROTECTED

Parts of this electrical meter box are tough fabricating tests for any steel. But what's remarkable is that they are fabricated from zinc-coated steel!

Because it is Armco ZINCGRIP®—ductile steel with an exceptionally tight hot-dip coating of zinc—there is no flaking or peeling of the protective zinc coating. It takes as severe a draw as the base metal.

This kind of performance is standard for Armco ZINCGRIP Steel. The continuous hot-dip zinc-coated steel, it has a record of more than 21 years' service in hundreds of manufacturing plants.

Experience has also shown that Armco ZINCGRIP Steel can save money by replacing many parts that formerly required costly painting or plating for protection from rust.

If you have avoided using zinc-coated steel because your product parts require severe fabrication, let us give you more information about this special steel that *stays zinc-protected even when severely worked*. Just fill in and mail the coupon, or call your nearby Armco Sales Office.

ARMCO STEEL CORPORATION

2067 Curtis Street, Middletown, Ohio

Send complete information on Armco ZINCGRIP Steel

We make _____

Name _____ Title _____

Firm _____

Street _____

City _____ Zone _____ State _____

ARMCO STEEL CORPORATION

2067 Curtis Street, Middletown, Ohio

Sheffield Steel Division, Armco Drainage & Metal Products, Inc., The Armco International Corp.



Production Takes A Short-Cut

With Pre-Plated NICKELOID METALS



Sheet of Nickeloid chrome-steel that will be used for breadbox is blanked, with punch-out perforations for ventilation and indented shelf supports. Uniform pre-plated finish reduces rejects.



Edges of Nickeloid chrome-steel sheet are turned up $\frac{1}{2}$ " in forming press. Nickeloid is easily worked with standard methods.



Breadbox body frame is spot welded to the preformed bottom and back pieces, with no visible oxidation. Parts then move to assembly.



Two bends are made on press to give the breadbox its rectangular shape. Operation causes no marring of surface or dulling of finish.

No Cleaning or Post-Plating — Easily Worked With Standard Production Methods

No cleaning solutions, plating tanks or polishing wheels on the production line at Lincoln Metal Products Co., Brooklyn, N.Y., manufacturer of fine pantryware. Lincoln eliminates these costly intermediate steps by using Nickeloid pre-plated chrome-steel and copper-steel. These versatile design materials speed trouble-free production, reduce rejects, prolong tool life. They are readily worked with standard production methods, as shown here. Parts move from fabrication — to assembly — to packing, with no dulling or marring of the pre-plated finish, since Mar-Not protective covering is used. No cleaning, plating, polishing is needed. Nickeloid Metals are available in pre-plated finishes of chrome, nickel, copper or brass on steel, zinc, copper, brass and aluminum. Sheets, strips, coils — a wide range of finishes and patterns.

Write For Free Literature



AMERICAN NICKELOID COMPANY

Peru 11, Illinois

JANUARY • 1958 MPM

PHILLIPS
OR SLOTTED
**TAPPING
SCREWS**
BY *Southern*

precision-made to Nationally established standards
in **STEEL, ALUMINUM, OR STAINLESS**
FLAT, ROUND, OVAL, PAN, TRUSS, HEX
Types: **A, B, C & F**

Southern makes the tapping screws you need for
faster, more profitable production . . . Rigid
quality-controlled manufacturing methods in our own
plant, employing only U. S. A. workers and materials,
means that you can safely place full confidence in
Southern as your one source for fasteners.

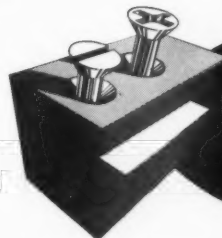
Over one billion Southern screws in stock. Four
strategically located Southern warehouses
mean service with a capital S!

Wire or phone your requirements, or write
Southern Screw Company,
P. O. Box 1360, Statesville, N. C.

SOLD THROUGH LEADING
WHOLESALE DISTRIBUTORS



A, B, C & F TAPPING SCREWS
MACHINE SCREWS & NUTS
DOWEL SCREWS
WOOD SCREWS
DRIVE SCREWS
STOVE BOLTS
CARRIAGE BOLTS
HANGER BOLTS
SPEAKER SCREWS
WOOD KNOB SCREWS



Southern
SCREW COMPANY
STATESVILLE - NORTH CAROLINA

WAREHOUSES:
NEW YORK
CHICAGO
DALLAS
LOS ANGELES

check list

FOR PORCELAIN
ENAMELERS

METAL PREPARATION

Pickling Tanks · Pickling Baskets · Neutralizer Tanks
Filter Presses · Hoists · Sandblasting Equipment
Ferro-Curran Pickling Machines

MILL ROOM

Mills—production type · Mills—laboratory type · Mixers
Pumping Units · Agitators · Magnetic Separators
Rotosprays · Rotospray Parts · Sieves · Testing Equipment
Slump Tester · Pressure Tanks · Water Treatment Tanks
Sponges · Balls and Pebbles · Mill Lining Blocks

DIPPING & SPRAYING

Dipping Tanks · Dipping Machines · Flow Coating Systems
Brushing & Edging Equipment · Spray Booths · Spray Machines
Spray Guns & Accessories · Pressure Tanks · Rubbing Stones

DRYING & BRUSHING

Dryers—batch type · Dryers—automatic type · Dusters
Brushing Equipment—automatic · Brushes—edging, stencil, rimming

FIRING

Furnaces—box, continuous · Conveyors · Furnace Tools · Muffles
Brick, Tile · Temperature Gradient Recording Equipment
Pyrometers · Timers · Asbestos Mitts

LABORATORY

Furnaces · Ovens · Titrating Equipment · Reflectometers · Thickness Gauges
Testing Equipment · Balance · Sieves · Rotap · Microscopes

IF YOU DON'T HAVE OUR LATEST PRICE LIST, LET US MAIL YOU ONE!

CHECK FERRO FIRST ... your best source
for all Porcelain enameling supplies and equipment



FERRO CORPORATION

4150 East 56th Street, Cleveland 5, Ohio

In Canada: Ferro Enamels (Canada) Ltd., Oakville, Ontario



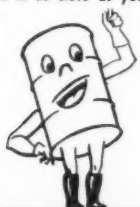
Cleaning Specialists*

* [SPE'CIAL·IST—One who devotes himself to some special branch of activity.]

At Northwest our "special branch of activity" is solving your cleaning problems.

Remember—YOUR COST PER FINISHED ARTICLE IS THE TRUE COST OF YOUR CLEANER.

Northwest's production-tested chemicals and "Right the first time" recommendations will save you money. Northwest Service is as close as your phone.



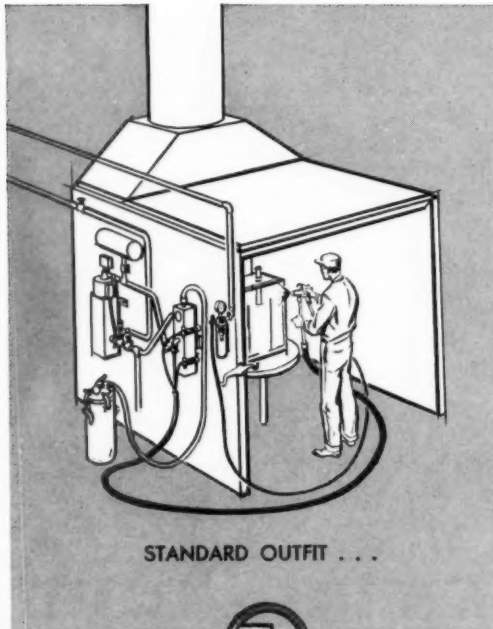
Behind your friendly, competent Northwest Sales Engineer stands a reputation for providing industry with low-cost, analytically-correct, job-adjusted chemical cleaners.

From Northwest's years of experience in formulating the RIGHT cleaner for your specific needs have come such developments as the LO-HI pH PROCESS—for cleaning prior to plating, painting, or vitreous enameling; ALKALUME PROCESS—for preparing aluminum and magnesium for finishing and spot welding; INTERLOX PROCESS—for phosphate coating; SPRA-LUBE—to control over-spray of "to-day's" paints in water wash paint booths; PAINT STRIPPERS—specific to your needs; SUPER-DRAW & FLUID FILM—for drawing metals.

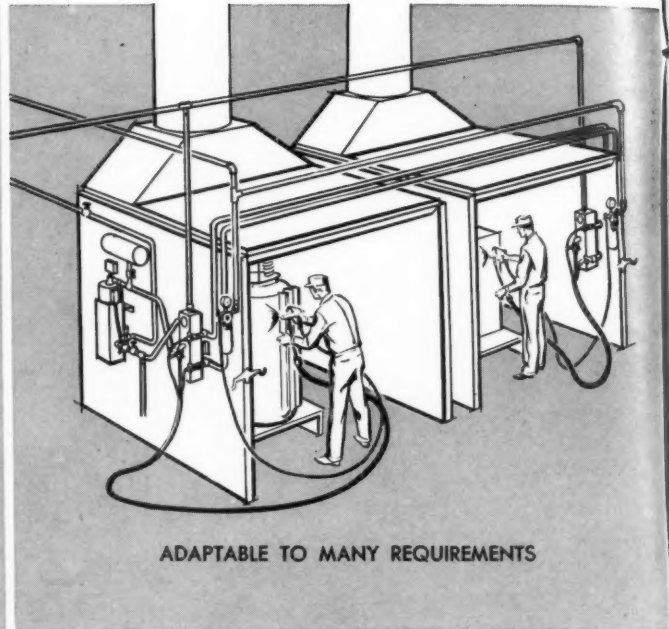
Northwest products are manufactured on the west coast by—
ALERT SUPPLY COMPANY • Los Angeles



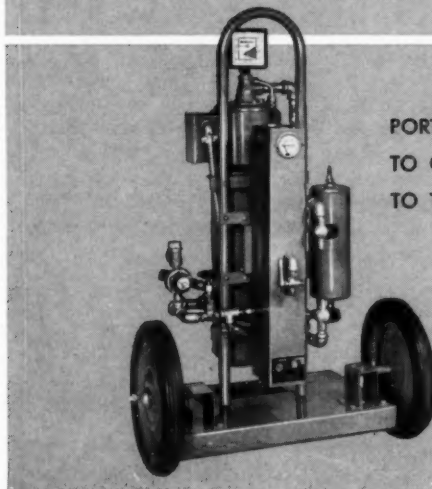
How DeVilbiss Hot S



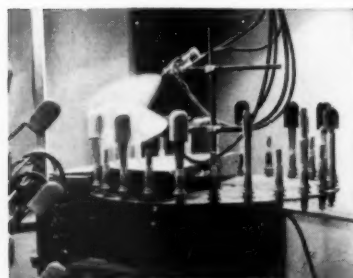
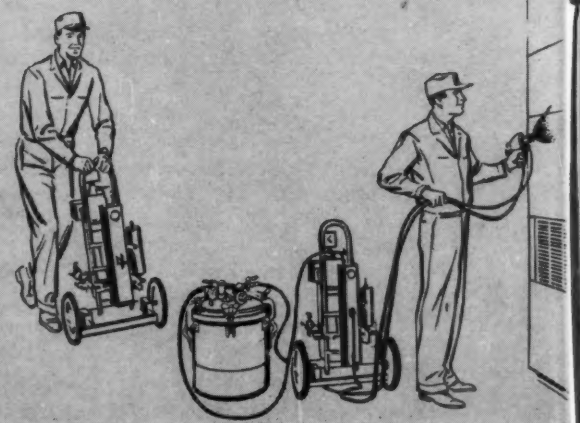
STANDARD OUTFIT . . .



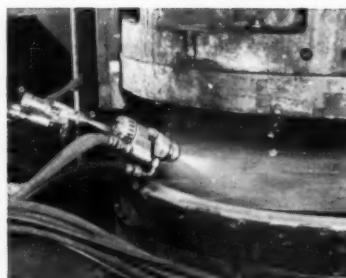
ADAPTABLE TO MANY REQUIREMENTS



PORTABLE OUTFIT
TO CARRY
TO THE JOB



DeVilbiss Automatic Spray Machines coat products of any size or shape quickly, economically, automatically.
Send for Series I-8000 Bulletins



DeVilbiss Automatic Guns spray drawing compound for accurate die lubrication; adapt to automated plants.
Send for Catalog I-1125A



DeVilbiss Air Compressors deliver as much as 22.6% more air per power dollar. Sizes range from $\frac{1}{2}$ to 15 hp.
Send for Catalog C-50

t Spray cuts painting costs

**Heavier film builds • Less overspray
Faster drying • Easier application • Fewer rejects
Better flow-out for high gloss**

Using a DeVilbiss Paint Heater, you can get better coverage with *one* coat than you generally get with *two or more* cold-sprayed coats!

Here's why: Heat acts as a thinner to permit easier atomization and brings about new efficiency in spray painting. Even with your regular paint, heavier finishes can be applied with a savings of up to 50% in materials.

What's more, thinners are vaporized faster, drying time is decreased, finishes flow smoother and with less shrinkage. And the lower spraying pressure greatly reduces wasteful overspray.

Whatever model paint heater best

suits your requirements—a standard or portable outfit, or one adapted to your paint shop layout—you enjoy a big advantage by buying from DeVilbiss, the only one-source designer and manufacturer of complete, engineered finishing systems or individual components in the industrial-coating field.

For it's this one-source responsibility that means important savings to *you* in the initial purchase; in the assurance of high product quality; and in the efficient performance of each individual component.

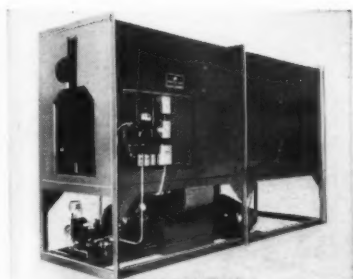
Call your nearest DeVilbiss branch today, or write for free booklet, "New Efficiency from Hot Spray."

THE DEVILBISS COMPANY, Toledo 1, Ohio • Barrie, Ontario • London, England • Branch Offices in Principal Cities

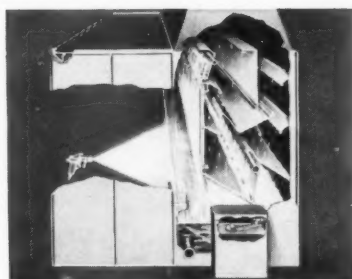
DEVILBISS



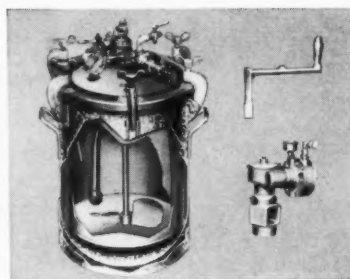
NEWCOMB-DETROIT



Newcomb-Detroit Ovens are designed and manufactured to meet layout and process needs for baking or drying.
Send for Oven Catalog



DeVilbiss Spray Booths. Over 700 standard models provide efficient paint trapping for each individual job.
Send for Catalog I-7000



DeVilbiss Paint Tanks. Hand or motor-driven agitation for heavy materials. Galvanized. Simple! Foolproof!
Send for Catalog IE-E

Now! **Save up to 50%**
in wrinkle material costs!



NEW IC* ELECTROSTATIC
Rincontrol*
ENAMELS
in Pastels and Dark Colors

Interchemical brings you substantial economy in textured finishes with its new *electrostatic* wrinkle finish! Savings soar because of greatly reduced material consumption. One major manufacturer reports savings in material costs of up to 50% because of lower rejects and less paint waste.

New IC Electrostatic Rincontrol is available in *pastels* as well as dark colors and gives you a wide choice of textures. In addition, it provides the long-famous features of IC Wrinkles — excellent uniformity, and high resistance to abrasion, perspiration, and impact.

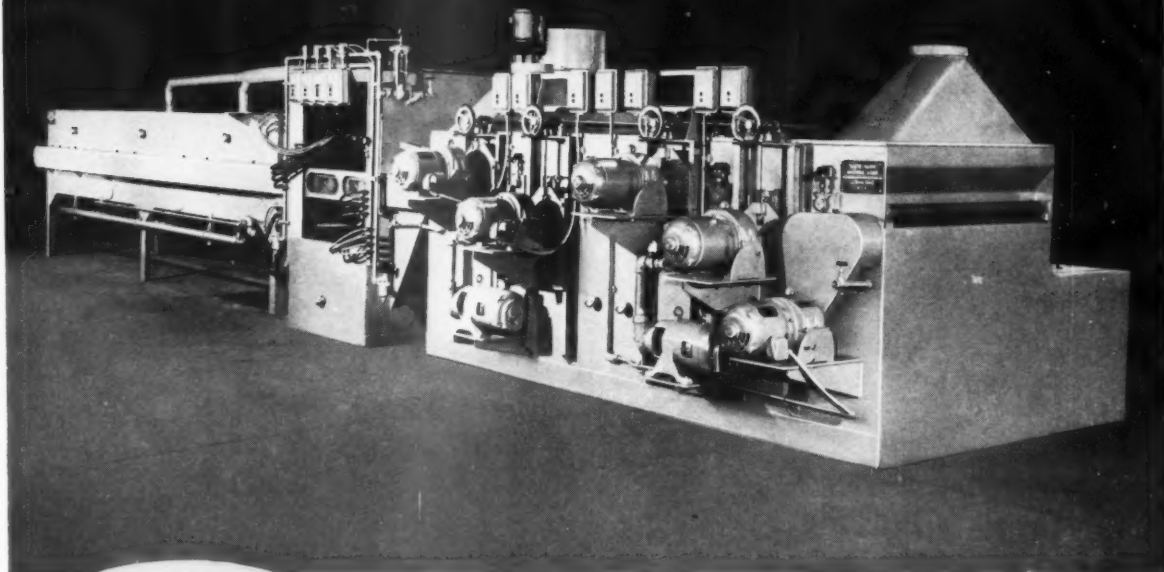


Interchemical
CORPORATION
Finishes Division

Contact your IC Finishes Specialist
about production-tested
IC Electrostatic Rincontrol,
or write for complete information.

Headquarters Office: 224 McWhorter St., Newark 5, N. J. Factories: Chicago, Ill. • Cincinnati, Ohio • Elizabeth, N. J. • Los Angeles, Calif. • Newark, N. J. • Mexico City, Mex. • In Canada this product is made by Aulcraft Paints Limited, Toronto, Ontario, and sold under its trademark. *IC and Rincontrol are trademarks of Interchemical Corporation.

New complete service for metal preparation . . .



WHITE-ROTH

**machines now available
from Pennsalt Chemicals Corp.**

White-Roth washers, coaters and dryers have an established reputation for outstanding metal surface preparation in leading appliance, automotive, aircraft and metal processing plants. Pennsalt's chemicals for metal processing provide the most complete line of specialized cleaners, coatings and lubricants in existence.

Now these chemicals and machines are offered together . . . in completely engineered installations . . . to take full advantage of the capabilities of each. Pennsalt engineers supervise installation and start-up, make

regular service calls to check *system* performance, assure continuous operation. This unique combined approach gives you guaranteed processing with highest efficiency and economy.

If you are considering an installation, or would like to know if your present operation can be improved in any way, call or write Pennsalt for further information, or for a consultation and quotation. Metal Processing Department 557, Pennsalt Chemicals Corp., Three Penn Center, Philadelphia 2, Pa.

*Metal Cleaners
Drawing Compounds
FOSBOND® Phosphate Coatings*



A better start for your finish



THE MPM spotlight



Combination refrigerator, range (with oven if desired), freezer, and sink in a cabinet, by General Air Conditioning Corp., offers complete kitchen facilities and attractive appearance wherever it is used. The steel cabinet is offered in a selection of natural wood or white finishes so that it will blend with other furniture and/or appliances. The unit has a stainless steel cooking top and sink.



Cook's puts the finishing touch on **Coleman** comfort

Comfort is the main business of The Coleman Company, Wichita, Kansas. Their line of cooling and heating equipment does a year-'round job of comfort-conditioning homes and buildings throughout the nation.

For the protection of their quality products, and for dependable production efficiency, Coleman uses Cook's industrial finishes. So do hundreds of other manufacturers of products ranging from bobby pins to bulldozers.

You find Cook's industrial and commercial finishes everywhere. Cook's travels the highways on millions of cars, rides the rails on rolling stock, helps work the north forty on farm equipment, and gives gleaming, lasting good looks to the housewife's kitchen appliances.

We'd like to show you, too, how Cook's can help you to added sales appeal and production economy.

Cook Paint & Varnish Company • Kansas City, Missouri
Factories: Kansas City • Detroit • Houston

**COOK'S
PAINTS**

Famous Coleman products finished with Cook's



Furnaces &
Air Conditioners



Space Heaters



Mobile Home Heaters



Snow-Lite Coolers

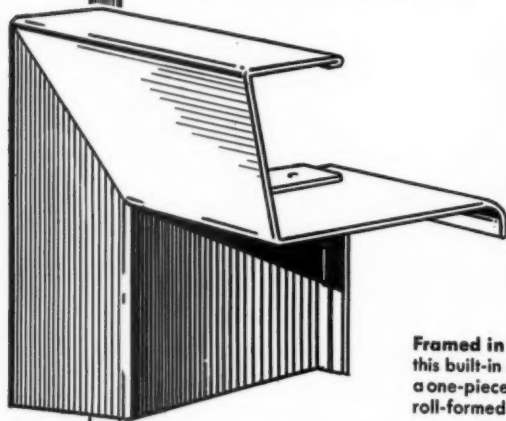


Lanterns

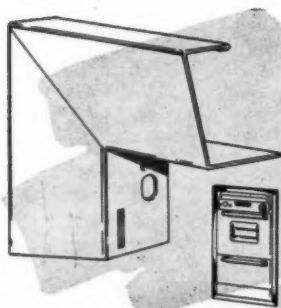
"SQUARE OFF" FOR SALES!

with PYRAMID MOULDINGS

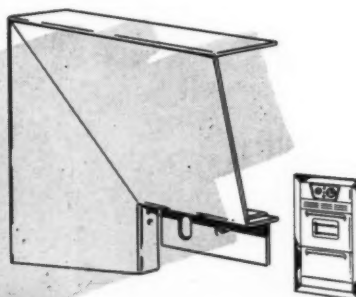
You, too, can achieve the much-wanted "square look" in free-standing or built-in appliances—with little or no tool cost! Pyramid offers standard designs roll-formed from stainless steel . . . or custom designs created at surprisingly low cost, thanks to the economies inherent in the roll-forming process. Whether your need is for square types, round or straightaway—when it comes to metal mouldings, come to Pyramid, specialists in roll-forming for 30 years!



Framed in functional beauty, this built-in refrigerator features a one-piece stainless steel frame, roll-formed by Pyramid.



Clean-cut square lines in a one-piece oven frame.



Custom look from a standard roll-formed pattern!

Write Today for Your Free "Plan Book of Metal Mouldings"

Pyramid Mouldings Inc.

5365 WEST ARMSTRONG AVE., CHICAGO 30, ILL.
NEW YORK, CALIFORNIA



from the
Editor's Mail

Liked September issue

Gentlemen: I have just been looking over the September issue of MPM . . . I like it just the way it is, and I like the appeal to the reader that is so well expressed in many of the articles, and also in the advertising. Please accept my very heartiest congratulations on the format and context of your September issue.

J. E. Eagle
Manager, Ceramic and Color Sales
Pemco Corp.
Baltimore 24, Md.

Airless spray of interest

Gentlemen: We have read the article appearing in the October issue of METAL PRODUCTS MANUFACTURING concerning the use of an airless spray portable unit at American Monorail in Cleveland.

We are interested in the use of a unit such as this to spray plastisols, as noted in the article. Would you please tell us where we can obtain more information about, and the cost of, such a unit?

I have received your magazine for quite some time, and find it always useful and well written. I want to thank you for your courtesy in sending it to me.

William J. Osborne
Sales Manager
Arbonite Corp.
Doylestown, Pa.

Editors' Note: Copy of Mr. Osborne's letter has been forwarded to Resistoflex Corp., Woodland Rd., Roseland, N. J., for additional information.

Values article for sales use

Gentlemen: I read with a great deal of interest your article in the recent publication concerning Hotpoint's new coaxial mechanism. We felt the article was so outstanding and would be of great value to us and our dealers.

Would it be possible for us to purchase about 2,000 imprints of this article from you? If so, would you let us know as soon as possible what the cost would be, and we will send an order at once.

Mr. P. S. Nelson of the Hotpoint Co. advised me to contact you directly.

R. H. Lloyd
District Appliance Sales Manager
Graybar Electric Co., Inc.
Minneapolis 15, Minn.

Editors' Note: We have had excellent response on the Hotpoint feature. Mr. Lloyd's order was received the same day we received Hotpoint's second order for 5,000 reprints.

Wishes source of information

Gentlemen: We are very much interested in the article on page 50 in your October issue. This refers to steam spraying by Westinghouse Electric.

We would appreciate it very much if you would send us information on the manufacturer of this method, or if you want to send the request to the manufacturer, please have them get in touch with our paint spray foreman, Mr. Harvey Lane.

H. Rhodes
Interstate Metal Products, Inc.
Michigan City, Ind.

Editors' Note: A copy of Mr. Rhodes' letter has been forwarded to Du Pont, and additional copies sent to Binks and Devilbiss, manufacturers of spraying equipment.

Wants list of manufacturers

Gentlemen: We are interested in receiving a list of manufacturers of drying and baking oven equipment.

Any information and assistance you may offer will be appreciated.

Morton Sherwood
Purchasing Division
Kingston Industries Corp.
New York 17, N. Y.

Editors' Note: A list of manufacturers of drying & baking equipment was forwarded promptly to Mr. Sherwood.

Error in statistics cited

Gentlemen: We are a large supplier of shipping containers for the appliance industry; and as you know, we use your Metal Products magazine in our advertising.

We follow your monthly report of Metal Products Statistics so that we can compare our position with the industry as a whole. In this connection, I noticed a discrepancy in your September reporting of radio and television shipments compared to your October listing of these two items. Would you be good enough to advise me if the October figures are correct?

R. B. Waterhouse
Divisional Package Coordinator
Container Division
International Paper Company
Whippany, N. J.

Editors' Note: Mr. Waterhouse has been notified that we had inadvertently changed from reporting *production* of radios and television to *shipments* to dealers of same without realizing the difference in quantities.

Considers MPM an asset

Gentlemen: MPM is one asset everyone who is connected with the metal business should have, both from a manufacturing and from a sales viewpoint.

It also keeps you in touch with movement and progress of the leading personnel connected with the industry.

F. L. Pike
P. O. Box 854
Jensen Beach, Fla.

Editors' Note: Mr. Pike is connected with Jacksonville Metal Products.

Very informative

Gentlemen: I find this magazine very informative and enlightening and have utilized some of the companies which have been listed to great advantage.

L. Menza, Buyer
Electronic Systems Division
Sylvania Electric Products Inc.
Buffalo 7, N. Y.

Explains processes

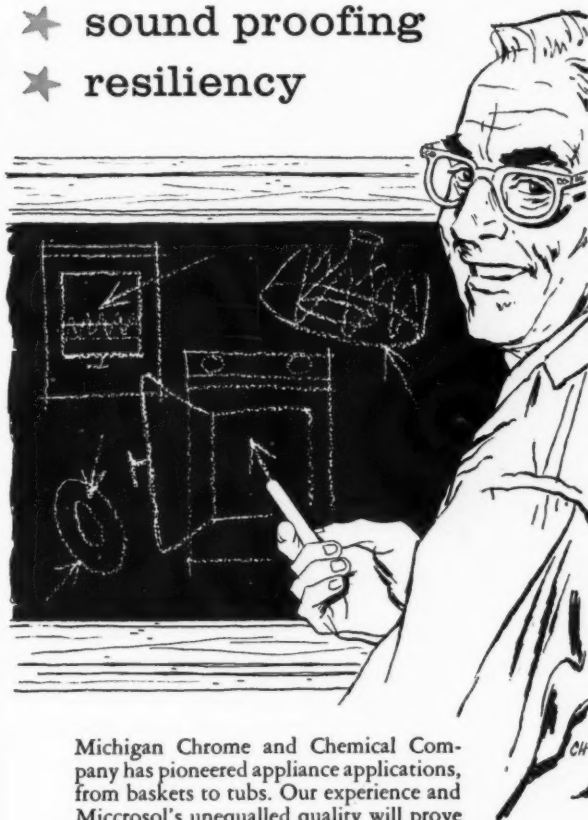
Gentlemen: Sorry I mislaid the notice I received in the Magazine. I find that MPM keeps me abreast of the latest developments in the line. Many of the articles are helpful in explaining processes to cost men who have had no factory experience. In my book MPM is tops in its field.

Joseph D. MacEachern
(Hotpoint Company)
618 Hawthorne Avenue
Elmhurst, Illinois

MICCROSOL

the ideal coating
for products when
you need . . .

- ★ corrosion resistance
- ★ abrasion resistance
- ★ choice of color styling
- ★ sound proofing
- ★ resiliency



Michigan Chrome and Chemical Company has pioneered appliance applications, from baskets to tubs. Our experience and Miccrosol's unequalled quality will prove invaluable to you.

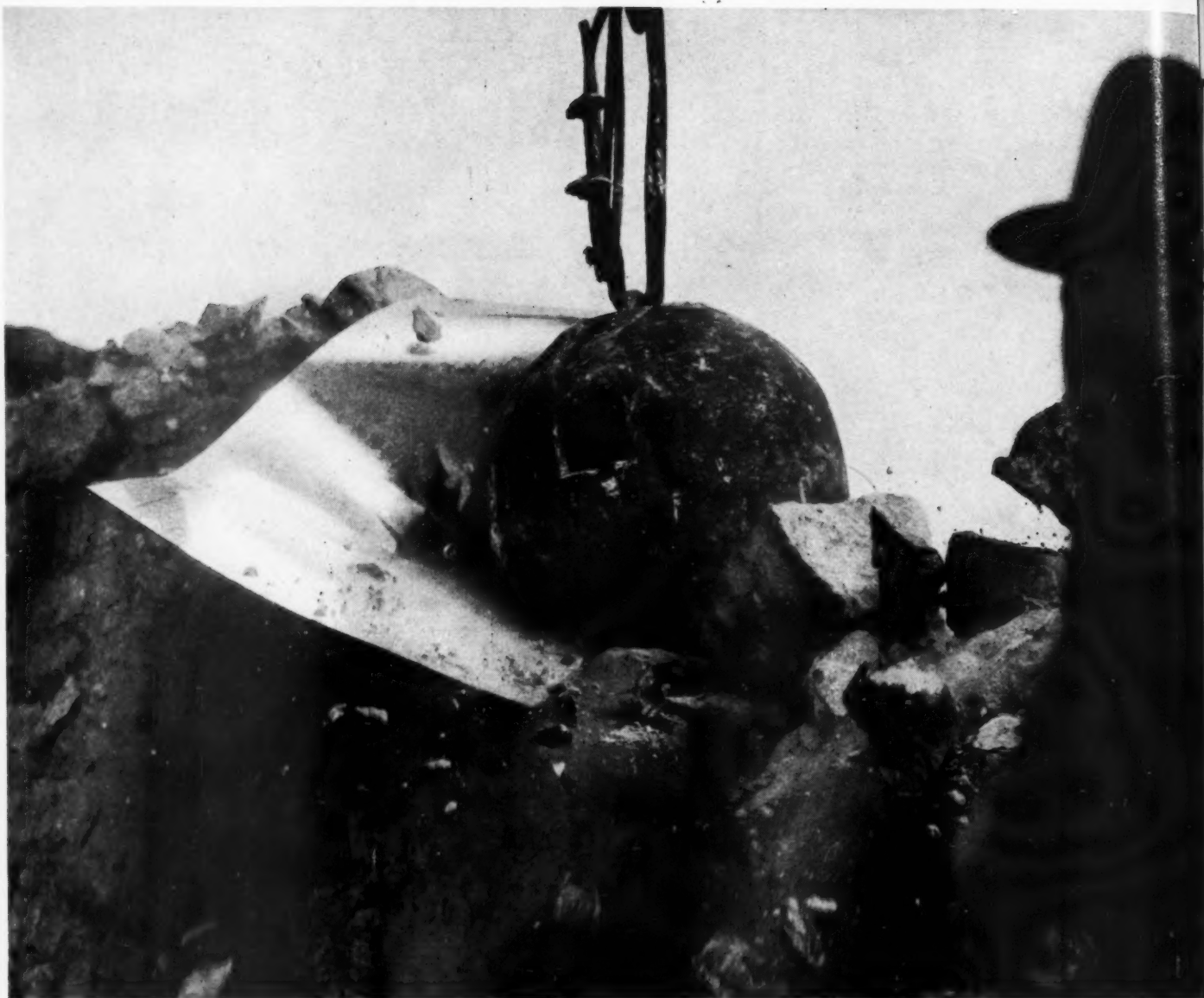
Miccrosol, the plastisol proven by use, is ideal for lining and coating parts and sections of products, where special characteristics are required.

Just send us full particulars regarding your coating and lining problems.



MICHIGAN CHROME and Chemical Company

8615 GRINNELL AVE. • DETROIT 13, MICHIGAN



THEY SMASHED INTO THAT WEIRKOTE[®] TILL WE COULDN'T STAND IT!

When a half-ton steel wrecking ball smashes broadside on target—mister, that's a *test*.

Yet, when Weirkote zinc-coated steel is put through that, or equally brutal punishment, its zinc coating stays skin-tight throughout the ordeal.

Think of that demonstration in terms of *your* products, production steps and cost problems.

Weirkote's continuous-process zinc coating *thrives* on toughest fabrica-

tion steps—spinning, deep drawing, roll forming, extrusion. And there's no flaking or peeling.

With Weirkote, you can eliminate the cost of plating, painting or redipping after fabrication. In many instances, you'll get prolonged die life, too, due to the lubricating quality of Weirkote's zinc coating.

Free Weirkote Booklet

Send for the new booklet on Weirkote today. Write Weirton Steel Company, Dept. R-6, Weirton, West Virginia.



**WEIRTON STEEL
COMPANY**

WEIRTON, WEST VIRGINIA

a division of

NATIONAL STEEL CORPORATION

THE finish LINE



METAL PRODUCTS STATISTICS (Page 89) show that only five products in the MPM monthly listing enjoyed a gain in the production, shipment and sales figures published for the first *ten months* of 1957, compared with the same period for 1956.

As might be expected, Built-ins number among these five with built-in Gas Ranges gaining 19.6 per cent and built-in Electric Ranges gaining 6.8 per cent. Other gains are from a low of 3.8 per cent for Gas Fired Boilers to 93 per cent for Combination Washer-Dryers. Fifth product listed for a gain is Radio, with a 9.7 per cent gain (for nine months).

Losses for other appliances and fabricated metal products for the ten month period range from a low of 2 per cent for Dishwashers to a low of 26 per cent for Automatic Ironers.

As the January issue of MPM goes to press, we can look back on the statistical record as history. While 1957 was a good year by an historical comparison, it was not a year to warm the hearts or the pocket books of those organizations in the industry who have come to expect sizable percentage increases each succeeding year.

While we may have our own opinions to express in later issues with respect to what can be done to improve the situation, we consider it far more important, at the start of a new year, to report the forecasts and predictions of the recognized experts and industry leaders.

The forecast symposium

As in former years, MPM presents a comprehensive summarization of leading forecasters, starting on page 19. While a few excerpts will be presented on this page, we recommend the complete forecast symposium to all readers.

Then, after you have absorbed the forecast information from the industry leaders, we suggest careful reading of the "Dictet report" on the IAM management seminar, starting on page 49. All of this information should prove valuable for consideration of your own plans for the new year.

GAMA says "close proximity"

Final 1957 volumes on major gas appliance items are expected to show a close comparison with the association's July General Business Outlook report, representing a consensus of opinion of the participating manufacturers.

While the various products are covered separately in the forecast, the general feeling of the report may be expressed in the statement that the volumes anticipated this year by the gas appliance and equipment manufacturing industry will be in "close proximity" to 1957 volumes.

AHLMA looks for "third highest year"

A joint forecast made by the market research departments of industry manufacturers and released through AHLMA shows home laundry appliances sales at "high though not record levels" for 1958.

MPM JANUARY • 1958

According to the forecast, factory sales of automatic and wringer washers, gas and electric clothes dryers, automatic ironers, and combination washer-dryers will total 5,370,000 units in 1958—third highest year in laundry appliance history.

ARI anticipates unparalleled growth

Sales of residential air-conditioning equipment in 1957 were substantially above any year prior to 1956 and installations in commercial and industrial establishments continue to climb, with total dollar "installed cost" figures for 1957 running well ahead of 1956.

Increased interest in Heat Pumps and greater activity in gas-fired air-conditioning are expected to reflect in worthwhile gains.

In summary, the report states that "the future of the industry seems even rosier than at the end of 1956. . . ."

NEMA expects major appliances to recover lost ground

Manufacturers of major electric appliances are "practically unanimous" in their opinion that sales decreases recorded during 1957 "will be more than made up" in 1958, according to the NEMA report.

Standard ranges are expected to have an output of almost a million units and Built-in ranges to reach a new high in acceptance—475,000 units during the current year.

Food refrigeration units are expected to total 4½ million during the current year.

Gains are predicted for other electrical appliances, too.

A summary chart from the Hotpoint ten year survey and statements on other materials and products are included in the MPM symposium.

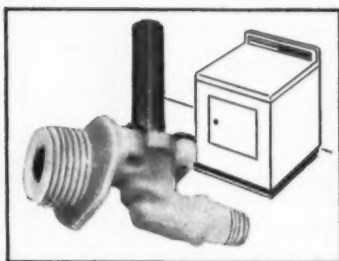
Our editors have visited many metal products manufacturing plants and covered important association meetings during the closing weeks of 1957 and the general feeling expressed in the many editorial reports can best be described in two words—"Conservative Optimism."

One thing seems certain. Manufacturers in the metal products field, whether they make materials, components or finished products, are girding for a real battle during this year. It is the general opinion that the days of order taking and lackadaisical selling are over and that those companies whose organizations expect to come through 1958 with flying colors must be prepared to do a much improved job of promoting and selling.

Dana Chase
EDITOR AND PUBLISHER

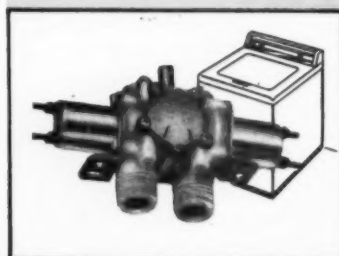


**Here are a few examples
of Dole valves designed
and produced for America's
leading appliance manufacturers**



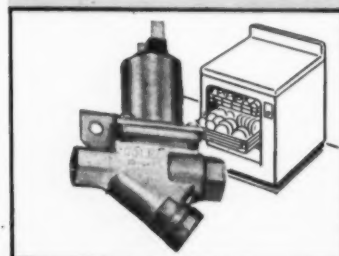
ON CLOTHES DRYERS

Developed for applications requiring controlled flow of cold water at rates up to 0.8 GPM. Here it provides a method of flushing lint and condensate. A unit of this type may be used in conjunction with other Dole units in combination washer-dryers.



ON AUTOMATIC HOME WASHING MACHINES

Dole Water Control Units similar to this were developed for the first automatic washing machines ever built. Such units turn water on and off, control rate of flow, and mix water to desired temperature. Dole also builds dispensing units to store and automatically dispense fabric conditioner materials at a predetermined time.



ON AUTOMATIC DISHWASHERS

Dole Single Solenoid Shut-off Valves turn water on and off and control proper flow rates for washing and rinsing. Incorporated in this valve is the Dole Flow Control. Dole Dispensers are also used in automatic dishwashers to store and automatically dispense water conditioner at the proper time in the cycle.

TOMORROW'S KITCHEN... *a pushbutton operation*

Cooking . . . laundry . . . dishwashing . . . water conditioning . . . ice making . . . refrigeration . . . heating . . . air conditioning . . . all provided for in this compact, convenient unit. Automatically operated from a central control panel. Fantastic? Not at all. In fact, it may be on someone's drawing board right now. Perhaps yours.

There'll be problems, of course. But if they involve the flow of liquids, turning on and off, controlling the rate of flow, measuring and dispensing, mixing for desired temperature, you'll most likely find the satisfactory solution in a Dole Valve.

No . . . it won't be a stock item. You won't find it on our shelves. It will be designed specifically for you . . . by Dole engineers working closely and confidentially with your engineers and designers. It will be produced fast and in volume . . . yet with the utmost accuracy and precision. And like everyone else who has had this experience, you'll be glad you came to Dole.

Whether you are designing for today or the future, if your project involves any of these problems of fluid control, you'll find it worthwhile to talk with a Dole engineer. There's no obligation.

Control with

DOLE®

If you would like additional information about these or other Dole Solenoid Operated Valves we shall be glad to supply it without obligation.

THE DOLE VALVE COMPANY

6201 Oakton Street • Morton Grove, Illinois
(Chicago Suburb)

FORECASTS FOR HOME APPLIANCES

GAMA-AHLMA-ARI-NEMA

with a summary of the Hotpoint ten-year forecast and supplementary opinions from individual materials producers and product manufacturers

AN ANNUAL MPM SERVICE FEATURE

The outlook in the gas appliance field

by Edward R. Martin •

DIRECTOR MARKETING AND STATISTICS,
GAS APPLIANCE MANUFACTURERS ASSOCIATION

BUSINESS in general looks towards 1958 as a year wherein sales will be in close proximity to 1957 volumes. The volumes anticipated by the gas appliance and equipment manufacturing industry are in tune with the expected trends of the overall economy.

Many economists, however, have indicated that while they expect the national sales of 1958 and 1957 to be in close balance, there is some uncertainty in evaluating the levels of the first half. The forecasts, therefore, embrace volumes which can be termed: status quo, up slightly, or down slightly. That might well be interpreted to mean "business as usual" for the year as a whole despite the unpredictable variations which affect the economy.

Unpredictable variations might be described as the effect of Sputnik I and II, the president's health, labor stability, government spending, inflationary trends, and a host of other factors which will arise and challenge the forecasting and economic fraternity.

Current economic conditions exert a strong influence on short-term forecasts. A forecast made today might be accurate in every respect, yet still not hold water a few months hence. The reason: those unpredictable variations which create consumer resistance and general business unrest.

GAMA's general business outlook surveys, therefore, have been made annually since 1948 and twice yearly for the past several years. They should not be regarded as forecasts based upon all known economic factors and prognostications. They are designed along practical lines and based on the premise that manufacturer executives, sales managers and production chiefs, those men responsible for the conduct of their business in a competitive economy, keep a finger on the pulse of both general business conditions and the economy of the industry in which their companies operate. Our surveys solicit this thinking and the tabulated results present the composite or industry consensus.

The accuracy of these consensus studies is illustrated by comparing those results of our July General Business Outlook study which dealt with 1957 volumes with the current estimated 1957

unit sales are shown in the table below.

In comparison with 1957 unit sales, here's the way next year looks:

Domestic gas range sales will approximate the levels of 1957 and total 1,987,000 units. Sales of built-in units will increase 19 percent and compensate for the 1.5 per cent anticipated decrease in sales of free-standing models.

Automatic gas water heater sales are expected to rise 1.2 percent and approximate 2,573,300 units. The trend towards larger tank capacities is expected to continue with sales of 40 gallon and over heaters being up 11.2%.

Gas central heating equipment manufacturers expect industry sales to go over the million mark (1,010,500 units), a 2 percent increase. Warm-air furnace and boiler sales are expected to increase by 2.7 percent and 7.6 percent, respectively. Conversion burner sales are anticipated to be approximately 4.8 per-

1957 volumes, July consensus compared with estimated 1957 unit sales

	Consensus	Estimated
Domestic gas ranges	1,977,700	1,975,000
Automatic gas water heaters	2,590,600	2,543,000
Gas central heating equipment	952,600	990,600
Gas direct heating equipment	1,373,000	1,319,000
Gas vented recessed wall heaters	296,500	314,600
Gas floor furnaces	102,200	92,200

**Anticipated 1958 industry unit sales
Compared with estimated 1957 unit sales**

	Unit shipments			July, 1957 consensus '58-'57% change
	1958 (Consensus)	1957 (Estimated*)	% change 1958-1957	
1. Domestic gas ranges:				
a. Free standing	1,749,100	1,775,000	-1.5%	+0.5%
b. Built-ins (oven-broiler units)	237,900	200,000	+19.0%	+16.4%
c. Total	1,987,000	1,975,000	+0.6%	+2.0%
2. Automatic gas water heaters:				
a. Under 40 gallons	1,802,000	1,848,800	-2.5%	—
b. 40 gallons & over	771,800	694,200	+11.2%	—
c. Total	2,573,800	2,543,000	+1.2%	+1.5%
3. Gas central heating equipment:				
a. Warm air furnaces	748,400	728,500	+2.7%	+7.7%
b. Boilers	108,500	100,800	+7.6%	+5.8%
c. Conversion burners	153,600	161,300	-4.8%	-2.4%
d. Total	1,010,500	990,600	+2.0%	+6.0%
4. Gas direct heating equipment	1,297,600	1,319,000	-1.6%	+2.0%
5. Gas vented recessed wall htrs.	319,700	314,600	+1.6%	-4.0%
6. Gas floor furnaces	88,800	92,200	-3.7%	-7.5%
7. Gas unit heaters	—	—	+13.3%	+8.3%
8. Gas duct furnaces	—	—	+6.7%	+14.3%
9. Gas incinerators	—	—	+5.4%	+22.1%

*Ten months actual, two months estimated.

The foregoing represents the composite of manufacturers thinking on anticipated industry volumes. However, if individual companies all perform up to their expectations, 1958 volumes could be materially increased.

cent below current volumes.

Other residential gas appliance and equipment: sales of gas vented recessed wall heaters are expected to increase by 1.6 percent while sales of floor furnaces and direct heating equipment will be slightly off the 1957 pace. Gas clothes

dryer and incinerator manufacturers look for moderate increases in 1958 sales.

Non-residential equipment manufacturers, in general, evidenced a higher degree of optimism with regard to sales during the coming year. The consensus

is that sales of gas unit heaters will be up 13.3 percent; gas duct furnaces will increase by 6.7 percent; and hotel and restaurant cooking equipment will register a moderate increase.

There follows a summary presenting the consensus of anticipated 1958 volumes as compared with the estimated unit sales for 1957. Changes in manufacturers' thinking over the past six months can be reflected by comparing the percentage figures in the last two columns. The figures in the fourth column represent the consensus as to 1958 industry volumes in July of 1957.

Conclusion: Any short-term forecast of the household appliance and equipment industry must take into consideration the current and anticipated levels of new housing activity and family formations. Both were at relatively low levels during 1957.

Family formations are expected to increase in the early sixties. With regards to residential building, the trend of thinking is that 1958 will more or less duplicate 1957 levels.

Among the significant developments of the past year is the fact that while, in the main, gas appliance and equipment sales dropped below 1956 levels, the declines were not as severe as those recorded in the sales performance of competitive appliances and equipment.

Taking a broad look at 1958, the gas appliance and equipment industry anticipates the establishment of no new sales peaks. However, in comparison with 1957, it will be a comfortable year.

1958 home laundry appliance sales expected to continue at high level

HOME LAUNDRY appliance sales during 1958 will continue at high though not record levels, according to a joint forecast made by the market research departments of industry manufacturers and released by Guenther Baumgart, executive director of the American Home Laundry Manufacturers' Association.

According to the forecast, manufacturers expect factory sales of automatic and wringer washers, gas and electric clothes dryers, automatic ironers, and combination washer-dryers to total 5,308,000 units during 1957, and to reach 5,370,000 units in 1958. These two years will rank as fourth and third

highest, respectively, in the century old laundry appliance industry.

Automatic washers

Automatic washers, themselves relatively new (most sales have occurred since World War II), were forecast for 1957 at 2,800,000 units and 2,900,000 units for 1958. Previous yearly peaks were: 1956 — 3,228,000, 1955 — 3,082,000, and 1954 — 2,353,000 units.

Automatic dryers

Automatic clothes dryers, also a post-war growth product of the industry, will total 1,310,000 units in 1957 and 1,500,000 units in 1958, according to

the forecast. Growth of the automatic dryer over the last decade has been phenomenal. Only 3,739 units were shipped from factories in 1946, while factory sales reached 1,499,000 units in 1956.

Automatic ironers

Automatic ironers were the one weak spot in an otherwise encouraging outlook. Sales, which dropped to 58,500 in 1956, were expected to total only 46,000 units in 1957, with a further reduction to 45,000 in 1958.

Combination washers-dryers

Sales of combination washers-dryers,

Year	Total Sales in Units
1958	5,370,000 (estimated)
1957	5,308,000 (estimated)
1956	6,005,000
1955	5,703,000
1954	4,474,000
1950	5,026,000

(Note: for further details, see comparison table at end of release.)

the industry's baby, totalled only 102,406 units during 1956, will reach an estimated 180,000 units in 1957, and are expected to exceed 250,000 units during 1958.

The industry's six best sales years, including the 1957 and 1958 forecasts, are shown in table at right.

Six peak sales years for home laundry Appliance Manufacturing Industry						
(Figures in thousands of units)						
	Forecast 1958*	Forecast 1957*	Actual 1956	Actual 1955	Actual 1954	Actual 1950
Total factory unit sales	5,370	5,308	6,005	5,703	4,474	5,026
Comb. washer-dryers	250	180	102.5	—	—	—
Washers	3,650	3,723	4,345	4,237	3,490	4,311
Auto. & Semi-A.	2,900	2,800	3,228	3,083	2,353	1,645
Wringer & other	850	898	1,117	1,154	1,137	2,666
Dryers	1,500	1,310	1,499	1,384	898	318
Electric	1,000	910	1,167**	1,016	662	251
Gas	440	398	434**	368	236	67
Ironers	45	46	58.5	82	86	397

*Forecast components do not necessarily add to sub-totals and totals, because figures used are medians from forecasts by AHLMA member companies.
**Figures include 102,406 combination washer-dryers. Data for gas and electric combination washer-dryers only are not available.

Coming — an era of growth without parallel

YEAR-END STATEMENT *by* Geo. P. Jones, Jr. • MANAGING DIRECTOR OF THE AIR-CONDITIONING AND REFRIGERATION INSTITUTE

THE modern miracle of mechanical refrigeration, and its spectacular off-spring, air-conditioning, became more firmly entrenched as integral parts of life in America during 1957, and the industry producing them looks forward to a new year of even greater public awareness of their contributions to health, comfort, industrial development, and national defense.

To stimulate this awareness on the part of the public, which will result in inevitable growth of the industry represented by the Institute, ARI and its members will continue and increase efforts to call attention to the benefits of mechanical cooling — whether it be applied to industrial processes, electronic "brains", ICBM developments, the millions of tons of food in America's refrigerated warehouses, or the comfort cooling of the American home, store, shop office and factory.

While sales of residential air-conditioning equipment in 1957 did not reach the heights forecast early in the year, they were still substantially above any year prior to 1956, and only a few percentage points below that year. Sales of room units for 1957 were estimated at 1,500,000, about 100,000 less than in the previous year, and central residential installations were approximately equal to those in 1956 — around 150,000. Cool summer weather over many

sections of the country was partially responsible for this leveling off of sales which had been showing sharp increases each year during the decade ending in 1956.

However, while residential installations and room air-conditioner sales took a breather during the year, installations in commercial and industrial establishments continued their climb, ARI said, basing its conclusion on reports from most of the major makers and installers of such equipment. While complete figures are not available at this time, it is estimated that the 1957 figure for installed cost of large systems will run well ahead of the 1956 total of \$556,670,000, which was \$120,000,000 more than the 1955 figure.

Meanwhile, development of new marketing methods for foods led the commercial refrigeration industry to design and manufacture new types of equipment for displaying and merchandising frozen foods and those requiring refrigeration, which now make up almost 75 per cent of our national diet.

Highlights in the refrigeration and air-conditioning picture for 1957 as seen in retrospect included the following, all of which have a direct bearing on the industry's future:

1. At a Government-Industry symposium on air-conditioning, held at the U. S. Commerce Department in April,

a government spokesman indicated that virtually all future government buildings will be air-conditioned for comfort and efficiency of employees.

2. A program of rating room-air conditioners in terms of British thermal units in accordance with ARI Standards was inaugurated, providing the public with a standard method of comparing cooling capacities of units offered for sale. This program is to be extended to other types of equipment.

3. Federal Housing Administration announced that it had "eased" its regulations with respect to air-conditioning equipment installed in homes whose mortgages are guaranteed by FHA.

4. A "round-table" discussion participated in by builders and representatives of the industry, held under joint sponsorship of House & Home magazine and ARI, at which the merchandising of new air-conditioned homes was discussed at length. Both ARI and National Association of Home Builders have appointed committees which will work together to the end of selling the idea of air-conditioned homes to the public.

5. The 10th Exposition of the Air-Conditioning and Refrigeration Industry, sponsored by ARI at the International Amphitheatre in Chicago in November, at which manufacturers displayed hundreds of new developments.

to Page 63 →

BURDETT OVEN **Saved \$4,160⁰⁵ in 6 Months** *Says: "Famous Name" Manufacturer of* **Steel Store Equipment**

We greatly appreciate this factual testimonial by the Bulman Corporation of Grand Rapids, Michigan.

They write:

"We have not only realized a substantial reduction in operating cost but a finer paint baking finish thereby improved our quality."

"We are very happy with our selection, because it has provided service beyond our expectation."

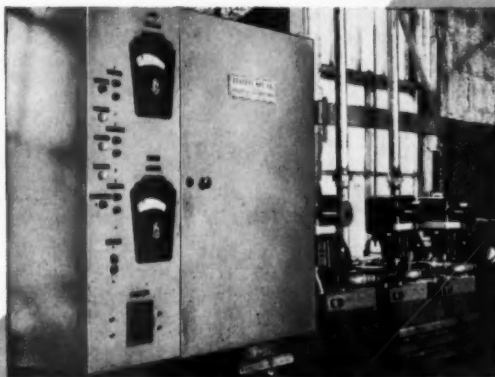
Look at these 6 months results

Net power savings—Burdett vs. former electric ovens.....	\$2,808.43
Savings in paint.....	1,351.62
Total savings with Burdett Ovens.....	\$4,160.05

Also

Production increased from 133 pieces per hour to 186 pieces per hour—(424 pieces per day)—39% production increase with same labor.

Can you beat this?
If not—install Burdett
Gas-Fired Radiant Heat Equipment



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 AIR MAKE-UP UNITS, SPRAY BOOTHS AND WASHERS

Major electric appliance manufacturers expect to recover lost ground in 1958

by Joseph F. Miller MANAGING DIRECTOR AND A. J. Nesti CHIEF STATISTICIAN, NATIONAL ELECTRICAL MANUFACTURERS' ASSOCIATION

MANUFACTURERS of major electric appliances are practically unanimous in their opinion that the decreases in sales suffered this year in almost all lines will be more than made up in 1958.

With the exception of built-in electric ranges, all major electric appliances represented in the NEMA Major Appliance Division experienced a substantial drop-off in shipments this year as compared to 1956. A look at the detailed figures released by NEMA will show that standard electric ranges and electric dehumidifiers suffered the worst experience with a drop-off in sales of approximately 20%. Electric food waste disposers, electric household refrigerators, and electric storage water heaters were next with a decrease in shipments of approximately 10% in 1957, as compared to 1956. Electric dishwashers and electric farm and home freezers had lesser decreases.

In the face of such disappointing sales performance, the experience with built-in electric ranges during the year stands out prominently. In 1957, 425,000 built-in units were shipped, as compared with 385,000 for 1956. This represented an increase of more than 10%.

Dishwasher sales to increase twenty-eight percent

The 1957 experience with NEMA major electric appliances is one experienced generally in all major consumer lines. Whatever combination of reasons economists might pick as an explanation for this unexpected consumer reaction to the purchase of major goods during the past year, manufacturers do not seem to feel that these reasons will hold over through the coming year. Without exception, manufacturers expect that there will be a recovery of some of the sales lost in 1957. For some lines, the expected increases are quite heavy. For example, in the case of electric dishwashers, which were off 21½% in 1957 as compared to 1956, it is expected that half a million units will

move into the homes of consumers. This would represent an increase of more than 28% in sales over the past year and a new peak for total output.

Four and one half million food refrigeration units

In the case of electric ranges, consumer preference will again be heavily slanted toward the built-in type of range unit. While standard ranges are expected to recover some of their market acceptance in 1958 with almost a million units of output representing slightly more than a 5% increase over 1957, the acceptance of built-in ranges is expected to increase almost 12% and reach a new high of 475,000 units. This continued trend on the part of the consumer to the modern "built-in look" is expected to have an effect on other electric appliances as well. With new designs to match the built-in kitchen idea, sales are expected to go up next year for electric household refrigerators, electric farm and home freezers, and electric storage water heaters. Refrigerator sales are expected to total 3½ million units next year. Coupled with this are expected sales of 950,000 electric farm and home freezers which adds up to almost 4½ million food refrigeration units going into homes next year.

Two major electric appliances, whose progress has been watched with extreme

interest over the past few years are electric food waste disposers and electric dehumidifiers. While food waste disposer sales like other appliance sales suffered a decrease in 1957 (off 10%) the total number of units sold was still over the half-million mark. In fact, sales in 1958 are expected to total 563,000 units. It is the feeling of most manufacturers of this product that the plateau reached in acceptance of the product in 1957, and carrying over to 1958, simply represents a pause before another period of rapid rise following further acceptance on the part of municipalities and the general public in the installation and use of this work-saving device.

With electric dehumidifiers, manufacturers are still feeling their way toward a real measure of consumer acceptance of this relatively new member of the major electric appliance family. After reaching the total output of 275,000 units in 1956, total industry sales dropped to 225,000 units in 1957, with an expected increase to 263,000 units in 1958.

In total, the purchase of major electric appliances on the part of the consumer during the year 1957 represented a very gigantic figure, emphasizing the continued trend toward electric living and toward the utilization of electric work-saving appliances.

NEMA MAJOR ELECTRIC APPLIANCES
Total Industry Sales—Number of Units (Including Exports)

	Year 1956	Year 1957	% Change 57/56	Year 1958	% Change 58/57
Electric Dehumidifiers	275,000	225,000	- 18.2	263,000	+ 16.9
Electric Dishwashers	400,000	390,000	- 2.5	500,000	+ 28.2
Electric Food Waste Disposers	610,000	550,000	- 9.8	563,000	+ 2.4
Electric Farm & Home Freezers	975,000	925,000	- 5.1	950,000	+ 2.7
Electric Ranges					
Standard	1,200,000	940,000	- 21.7	988,000	+ 5.1
Built-Ins	385,000	425,000	+ 10.4	475,000	+ 11.8
Total	1,585,000	1,365,000	- 13.9	1,463,000	+ 7.2
Electric Refrigerators	3,700,000	3,350,000	- 9.5	3,500,000	+ 4.5
Electric Storage Water Heaters	870,000	800,000	- 8.1	825,000	+ 3.1

SOURCE: NEMA STATISTICAL DEPARTMENT

The 10-year Hotpoint survey

10 YEAR FORECAST

Electric
(000 Omitted)

INDUSTRY FACTORY SHIPMENTS

YEAR	CABINET RANGES	CUSTOM OVENS	REFRIG.	FREEZERS	AIR COND.	WATER HEATERS	DISH- WASHERS	DISPOSERS	AUTO. WASHERS	DRYERS	COMBINATION WASHER-DRYER	B/W	T.V. COLOR
1957	920	420	3 320	890	1 750	790	360	500	2 800	900	165	6 800	200
1958	940	500	3 500	950	1 800	835	415	550	3 200	1 150	260	7 350	300
1959	1 000	650	3 700	1 000	2 000	825	475	600	3 450	1 300	400	7 700	450
1960	975	800	3 900	1 020	2 200	800	540	660	3 650	1 400	550	7 700	1 000
1961	950	900	4 100	1 040	2 500	800	600	730	3 750	1 500	700	7 200	2 000
1962	925	1 050	4 300	1 050	2 700	800	670	800	3 800	1 600	900	5 600	4 000
1963	900	1 150	4 500	1 070	2 900	800	750	870	3 950	1 675	1 100	4 800	5 200
1964	900	1 250	4 700	1 080	3 100	800	840	950	4 000	1 750	1 300	3 850	6 500
1965	900	1 375	4 900	1 090	3 300	780	930	1 030	4 050	1 825	1 500	3 500	7 200
1966	900	1 500	5 000	1 100	3 500	765	1 050	1 110	4 075	1 875	1 700	2 900	8 000
1967	900	1 600	5 100	1 110	3 700	760	1 140	1 200	4 100	1 925	1 900	2 600	8 500

THE major electric appliance industry will ship about 286,000,000 major appliances to the marketplace in the next 10 years, according to a prediction of the Hotpoint Co., who recently released its annual 10 year forecast on major appliances.

The forecast shows that the industry will ship to the market in the next 10 years, 9,200,000 electric ranges, 10,700,000 built-in appliances, 43,700,000 refrigerators, 10,500,000 food freezers, 27,700,000 air conditioners, 7,900,000 electric water heaters, 7,400,000 dishwashers, 8,500,000 food waste disposers, 38,000,000 clothes washers, 16,000,000 electric clothes dryers, 10,300,000 combination washer-dryers, 53,200,000 black and white TV receivers and 43,100,000 color TV receivers.

Total value of the industry shipments to the marketplace would exceed \$85 billions in the 10 year period from Jan. 1, 1958 thru Dec. 31, 1967.

FORECAST SUPPLEMENT

DISPOSER SALES

One of the world's largest manufacturers of household and commercial garbage disposers estimates total industry sales climbed more than seven per cent during a record-breaking 1957 sales year and predicts they will rise another 10 per cent next year.

Bertram F. Given, president of Waste King Corporation, Los Angeles, forecast that 660,000 disposers will be sold during 1958, valued at approximately \$52,800,000 retail.

He said the estimated 600,000 units sold by the industry during 1957 represented a 7.1 per cent increase over the previous year, and noted this was accomplished during a 12-month period marked by a general leveling off or dip in the sale of most other appliances.

PREDICT DISHWASHER SALES

A leading manufacturer of automatic dishwashers predicts total industry sales will top the 425,000 mark in 1958 — nine per cent over last year.

Bertram F. Given, president of Waste King Corporation, Los Angeles, said recently that the 425,000 under-counter, free-standing, portable, and convertible units will have a retail value of approximately \$127,500,000.

VACUUM CLEANERS

The sales outlook for vacuum cleaners during 1958 looks better than it did at
to Page 62 (Col. 3) →

**TODAY'S NEW AUTOMOTIVE
DESIGNS DEMAND THE
BEST STEEL OBTAINABLE**

***Youngstown Sheets
and Strip***



Detroit's high-speed automobile body presses are busier than ever turning out body components for today's modern-design cars. More intricate door and fender sections of the new models demand a steel of the highest quality that can take the required deeper draws in its stride. Without question, that steel is Youngstown Cold Rolled Sheets and Strip—the best available anywhere.

Youngstown blends the required combination of surface finish, tensile strength and ductility into every sheet, to provide you almost continuous pressings of even the most difficult-to-form parts. Also, metallurgical quality never wavers from Youngstown's high standards because all operations from ore mining to shipping dock are rigidly quality-controlled by experts with over half-a-century of steelmaking know-how.

On your next order specify Youngstown Cold Rolled Sheets and Strip and join the ranks of our satisfied customers who tell us: "Our production's up—Rejects down—Fabrication costs lowered."

Why not call your nearest Youngstown District Sales Office today, for metallurgical aid or additional information—or write directly to our Home Office.



THE YOUNGSTOWN SHEET AND TUBE COMPANY

General Offices - Youngstown 1, Ohio
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Producers of Quality Carbon and Alloy Steels for Over Half-a-Century



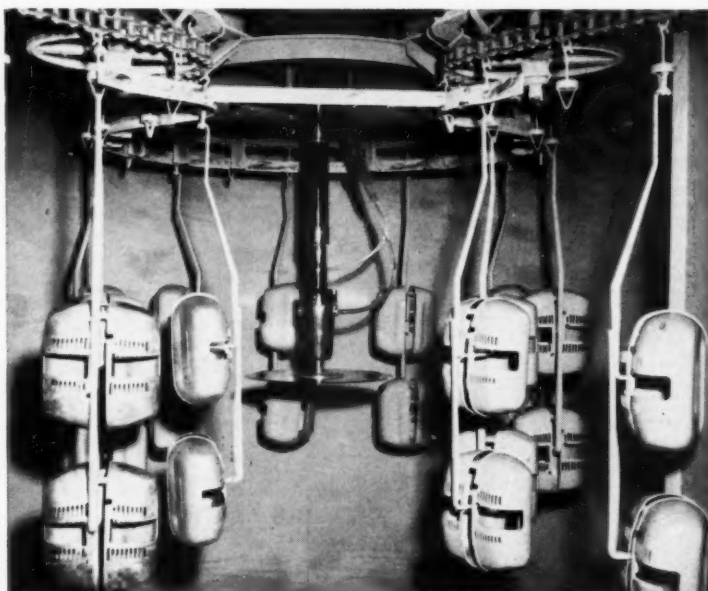
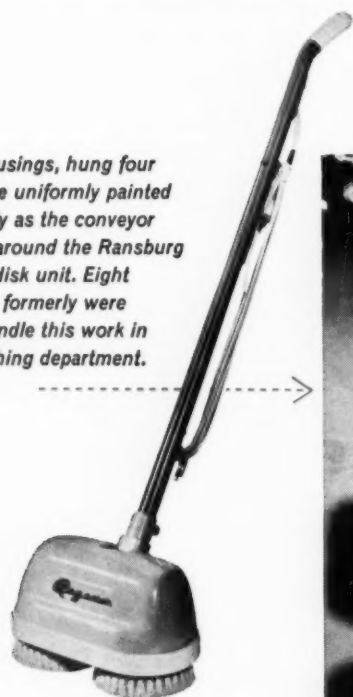
Regina

Reports **50%** Paint Saving with **RANSBURG NO. 2 PROCESS**

Electrostatic Spray Painting

That's because Ransburg No. 2 Process puts the paint on the product instead of up the stack

Aluminum housings, hung four to a fixture, are uniformly painted electrostatically as the conveyor makes a loop around the Ransburg reciprocating disk unit. Eight hand sprayers formerly were required to handle this work in Regina's finishing department.



The Regina Corporation, Rahway, N. J., replaced hand spray with Ransburg No. 2 Process to paint their twin-brush Floor Polisher and Scrubber, and their Elektrikbroom.

Now, a single reciprocating disk unit automatically handles the work which formerly required eight hand sprayers. Even with increased production, Regina is using 50% less paint. Quality of the work is improved with maximum uniformity on all parts.

NO REASON WHY YOU CAN'T DO IT, TOO!

Want to know what Ransburg No. 2 Process will do for you in your finishing department? If your present production justifies conveyorized painting, let us prove the many cost-saving benefits which can be yours. Write for our No. 2 Process brochure which pictures many on-the-line examples of electro-coating on a wide variety of products, and describes our free survey service.

Ransburg

ELECTRO-COATING CORP.

Indianapolis 7, Indiana

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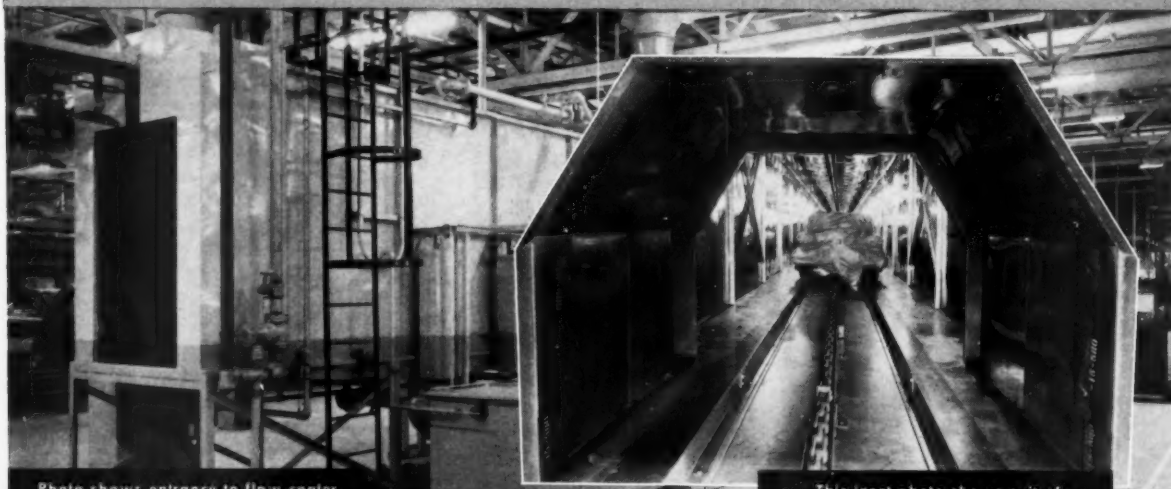


Photo shows entrance to flow cooler for finishing Edsel parts.

This inset photo shows exit of final car repair bake oven.

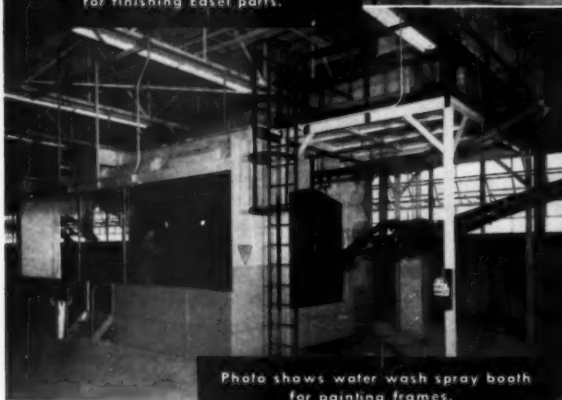


Photo shows water wash spray booth for painting frames.



Photo shows oven used in baking finish on Edsel wheels.

"Once you've seen it, you'll never forget it."

That's what they're saying about Edsel . . . the exciting new member of the Ford family of cars . . . for plenty of reasons. Edsel's classic vertical grille . . . low wide flight deck . . . new V-8 engines . . . steering-wheel Teletouch Drive . . . self-adjusting brakes . . . just to mention a few features.

. . . and s-a-a-y . . . those elegant colors . . . like being kissed by a rainbow! Durable colors . . . to brighten the highways season after season.

Finishing Edsels is the exacting result of research and production experience of the company's engineers . . . plus technical

assistance and equipment from experts like **DESPATCH** in the field of products finishing.

Latest equipment used in Edsel paint application . . . such as spraying or flow coating . . . and modern bake ovens for wheels or entire automobiles . . . are shown above in photographs of the new **DESPATCH** installation at the Ford Motor Company's Edsel Division, Rosemead Plant, Los Angeles, California.

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16 colorful pages on modern ways to achieve better finishes, faster production and smoother handling of metal products . . . at lower cost.

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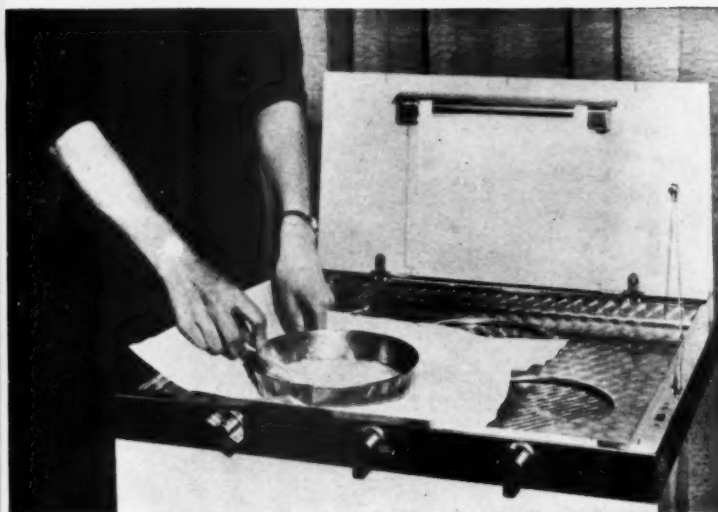
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Highlight of the cooking demonstration was the placing of a paper towel between the "burner" and the frying pan while the contents were being cooked with magnetic eddy currents.

OUR first look at a magnetic eddy current device that can be used for cooking as well as a power source for blenders, mixers, and other small appliances was in the laboratory of Tuttle & Kift, Inc., Chicago manufacturers of electric range surface units. The prototype unit, having the "square look" of an apartment range, was built to the specifications of Max Baermann of Cologne, Germany, its inventor. The Chicago company has purchased the rights to exploit the unit, which is now under evaluation in its laboratories.



Will the Mrs. cook on a "cold stove" in 1962?

a development from Germany, employing magnetic eddy currents for cooking and as a power source for small appliances, is being studied

A "cold" heat source

In operation, the cooking device employs an electric motor, and is actually an electric "generator" which sets up the magnetic eddy currents. By placing a copper bottom stainless steel sauce pan on one of the three smooth stainless "burners" or cooking surfaces, heat is generated in the food or liquid contents of the pan. Once the pan is removed, heat generation ceases. (Note

that to get optimum cooking results the utensil must be *magnetic* stainless steel.)

The device is operated by moving the magnets in relation to a stationary conductor, inducing an electric current into the conductor, in this case a copper clad stainless steel utensil. The heat can be controlled by varying either the intensity of the magnetic field or its coupling with the utensil. A control knob mounted on the unit provides the means of mechanical control.

Eye opening demonstration

for MPM editors

The prototype unit in the hands of a technician is capable of providing an attention-provoking demonstration.

Foods of various kinds are cooked speedily (some in 50 per cent of conventional cooking time) and the results appear to be everything that might be expected of a capable homemaker or an experienced chef. It was pointed out during the demonstration that 85 per

cent of all cooking is done *on top* of the range.

An interesting demonstration feature is the placing of an ordinary napkin between the "surface unit" and the utensil while boiling water. The napkin is removed unmarked after the water reaches the boiling point.

Versatility of the device is demonstrated by placing a pitcher of ice on one of the surface units while operating a power mixer on a second unit and cooking on the third unit. The food cooks, the mixer motor operates and the ice (just inches away) remains frozen.

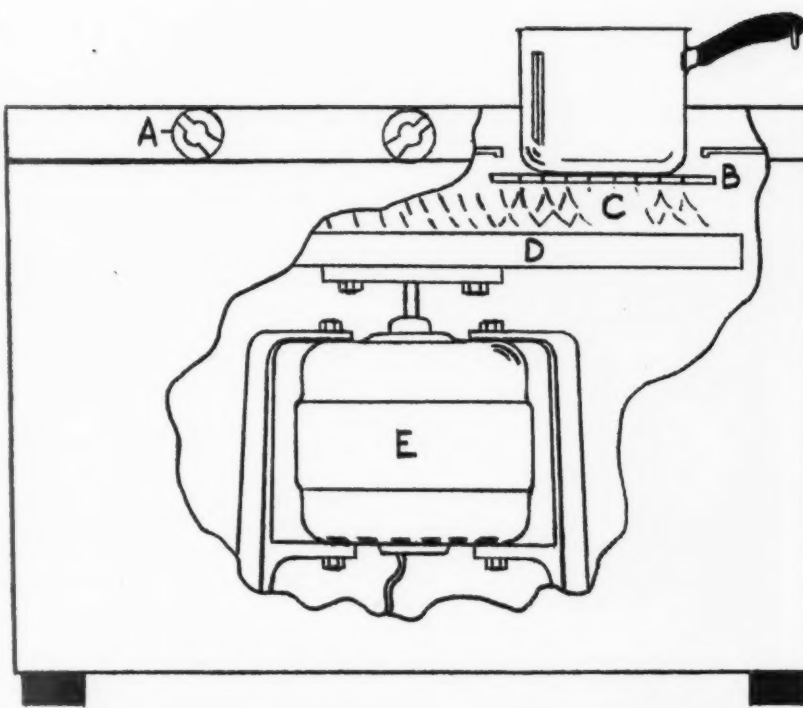
It is pointed out that a three-surface unit can be built to fit into a cabinet about two feet square and one foot deep. A top, which can be folded down immediately after cooking pans are removed, serves as a work surface, (no retained heat).

Attention was called to another unusual feature of the prototype unit. A water spray, built into the top of the device, may be used to wash away spilled foods without harm to the mechanism, which is fully protected from moisture.

Advantages claimed for the device include: compact size, decreased cooking time, less heating of kitchens, increased safety, and ease of cleaning.

Not tomorrow

It is apparent that the magnetic eddy current device, the "cold stove," will not be on the market tomorrow or in the very near future, as evaluation and possible marketing plans must come first. First stage has been the demonstrations for the press, and for manu-



A conception of the working mechanism of the cooking device is shown above. The control knobs (A) raise or lower the louvered "burners" (B) which permit varying amounts of the magnetic eddy currents (C) to reach the cooking utensil. The cooking utensil must be a conducting medium such as a copper-clad bottom magnetic stainless steel. The eddy currents are produced in the vessel by a revolving disk (D) made up of 35 permanent magnets, and is driven by a 3-hp motor (E).

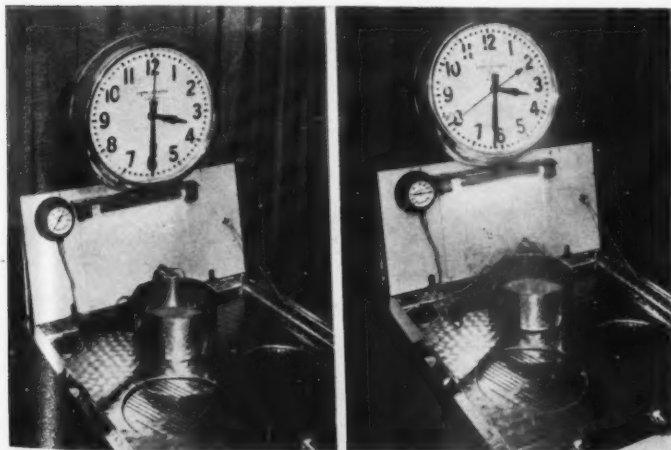
facturers of electric ranges and other appliances.

Some idea of T & K's thoughts on the unit may be read in the statement by John A. Sullivan, company president: "The unit could open the way to a new line of small kitchen appliances (em-

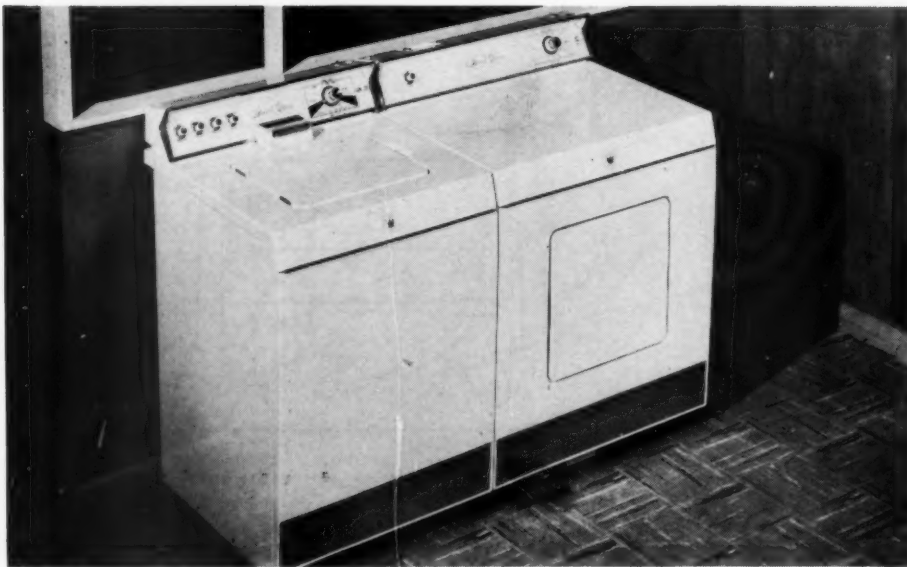
ploying a simple magnetic rotor as a power unit) such as mixers, sharpeners, grinders, graters, juicers, and blenders." He continued, "This unit can easily become much more than a cooking device, and may become the kitchen appliance center of tomorrow."

In this demonstration, water was brought to boiling temperature in 50 per cent of the time needed with a conventional range, according to laboratory tests.. Mixing can also be done in a blender having a magnetic rotor.

John A. Sullivan (left), Tuttle and Kift's president, and Bob Kelly, vice president, are shown here observing cooking on one unit, mixing on another, and no melting of the ice in the pan because of the non-magnetic composition of the pan. MPM photo



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SALES OFFICES IN DETROIT, CLEVELAND, MILWAUKEE

How to fabricate stainless steels

covers fabrication of various grades, good die practice, die lubricants, annealing, roll forming, spinning, cutting and shearing

by W. E. McFee • SUPERVISOR, PRODUCT INFORMATION SERVICE, ARMCO STEEL CORPORATION

PART ONE: FORMING



CHROMIUM-NICKEL GRADES of stainless steels are very ductile and are extensively used for deep-drawn parts.

For example, the 18-8 grade has an elongation in 2 inches of from 55 to 60 per cent as compared with an average of 40 per cent for low carbon drawing steels. Other chromium-nickel grades, such as the molybdenum Types 316 and 317, are a little less ductile than Types 302 and 304.

These are common characteristics that influence drawing practice:

1. They require heavier presses and more power to supply the greater punch and hold-down pressure necessary to make a successful draw.
2. Slower press speeds are necessary to permit uniform work-hardening and elongation in deep-drawing operations.
3. Adherent lubricants with high film strength are needed to meet the greater friction and higher pressures.

How specified

Stainless steel sheets for deep drawing are usually supplied in No. 2D finish; strip in No. 1 finish. Both are pickled finishes and possess better lubricant-holding qualities than smooth cold-rolled surfaces.

Types 302 and 304, deep-drawing quality, have adequate ductility for most deep-drawing and drop hammer work. Yet each of these has a high work-hardening rate and may require either annealing between operations or stress-relieving after final drawing to prevent stress cracking.

Type 305 with its increased nickel content has a lower work-hardening rate. On certain types of drawing operations this property will sometimes eliminate process annealing and stress-relieving. Proper alloy balance is essen-

tial for difficult drawing operations. The fabricator will do well to obtain the grade of stainless that will give the desired results in the press and thereby eliminate or minimize costly heat treating operations.

Good die practice

Experienced die makers can readily produce efficient dies for stainless steels. Design is little different from carbon steel.

For short runs low-cost die metal such as close-grained, hard cast iron is recommended. Cast irons containing small quantities of chromium and nickel perform well in somewhat longer runs. Solid alloy tool steels are used for high-production work because they harden deeply and wear longer.

In general, wall thickness of dies should be up to 50-per cent heavier for stainless steels than for low-carbon steel — this to provide necessary greater strength.

Allow at least twice the clearance between punch and die than for the same thickness of mild steel.

All radii should be as large as possible for easy flow of metal into the dies. Recommended minimum radius of five times metal thickness is the usual rule for die- and punch-nose radius. Draw rings of hard bronze or a special aluminum bronze alloy work best with stainless steels. They resist seizing, and the surface of the ring tends to stay smooth and clean.

Spring-loaded pads have been proved as hold-downs for small parts. Yet much closer adjustment of the hold-down pressure can be obtained with a double-action mechanical or toggle press, or with a double-action hydraulic press. Hold-down pressure must be distributed uniformly. Pressure should be just high enough to permit smooth flow over the drawing without wrinkling.

Always keep dies polished and smooth.

Rough dies will leave an impression on the work and tend to pick up metal. If the finished product is to be polished, additional grinding operations are necessary to eliminate die marks. Use a fine stone to finish and smooth dies.

Stainless steels draw better when kept at room temperature or above. When pulling stock from a cold warehouse, let it warm up before using.

Chromium stainless steels

Chromium grades are not as ductile as the chromium-nickel grades. With deep draws they often require additional annealing and drawing operations to stretch the metal more evenly over the entire blank. Still, there are variances in work-hardening rates between materials from different sources; so with some it is often possible to make several draws before process annealing.

Let the metal "flow" as much as pos-

Chart I
ANNEALING OF THE
CHROMIUM-NICKEL TYPES
Annealing Temperatures for
Chromium-Nickel Types

Grade Name	Type	Annealing Temperature Range
17-7	301	1900-2050 F
18-8	302	1900-2050 F
18-8 Si	302 B	1900-2050 F
18-8†	304	1850-2050 F
18-8*	304*	1850-2050 F
18-11 FS	305	1850-2050 F
20-10	308	1850-2050 F
25-12	309	1900-2050 F
25-20	310	1900-1950 F
18-12 Mo	316	1900-2050 F
18-12 Mo*	316*	1900-2025 F
19-12 Mo	317	1950-2050 F
18-10 Ti	321	1750-1950 F
18-10 Cb	347	1800-1950 F

†Low Carbon *Extra Low Carbon



Stainless steel blank 0.102" thick before and after first of three deep-drawing operations.

Chart II ANNEALING OF THE CHROMIUM TYPES Annealing Temperatures for Chromium Types		
Grade Name	Type	Annealing Temperature Range
12 (1)	410	1350-1450 F
12 A1 (2)	405	1200-1500 F
17 (2)	430	1400-1525 F
27 (2)	446	1400-1525 F

sible to prevent rupturing through excessive stretching. This may call for a larger blank than for Type 302; also lighter hold-down pressure. For best results the material should not be deep-drawn or formed below room temperature.

The previous recommendations for die material and hold-down pressures apply equally for the chromium stainless steels.

Drawing lubricants

It takes heavy pressures to draw stainless steels, and they develop high temperatures during the operation. For this reason a heavy-bodied lubricant possessing high film strength must be used to maintain a continuous film on the metal.

Whenever in doubt, consult an experienced producer of stainless drawing compounds. The proved compound for difficult draws is a sulfurized lubricant diluted with oil by the user. Another producer recommends a hydrogenated castor oil preparation.

Some shops make a reportedly suitable compound for severe draws by mixing lithopone and linseed oil, or other waterfree oil, in equal parts by volume. Load-carrying capacities of mineral oils may be increased by adding lard oils or stearates. Asphaltum additives have been found useful to heighten viscosity on certain types of draws. Adding up to 2½ per cent powdered sulfur produces greater film strength and anti-galling characteristics.

For light draws, the lithopone mixture can be thinned with kerosene, or a heavy soap and water solution may serve as well. Lubricants containing pigments should be cleaned off promptly after use else they will harden and be difficult to remove.

Rubber punch forming

Automobile soap in paste form is an



Before and after second drawing operation. Both first and second draws were made on double-action hydraulic presses. Note reduction in diameter and increase in depth.

excellent lubricant for rubber punch forming. It permits the rubber to flow on the sheet being formed. Also, soap preparations are easily removed. *Caution: Mineral oil or grease should not be used in this operation because it will cause the rubber to deteriorate.*

Applying lubricant

Lubricant may be applied either mechanically, by passing the blank through oiled rolls, or by hand-brushing the compound on the blank. Manual operation gives an experienced press operator latitude in applying the proper amount of lubricant in the right places for best drawing results.

Annealing and pickling

Few stainless steel drawing jobs call for annealing. Sometimes chromium-nickel grades are annealed between draws to restore ductility after work-hardening; also after the final draw to relieve stresses. Other jobs require annealing right after the final drawing operation to prevent spontaneous cracking of the drawn part. Chromium grades are less ductile and may require process annealing in progressive drawing operations.

Thorough cleaning of the part before annealing is important. Time at annealing temperature is not long. With light gage material a minute or two soak is enough. A useful rule is to soak parts at temperature three minutes for every 1/10th inch of thickness. Prolonged heating in upper temperature ranges should be avoided. It not only causes an "orange peel" surface blemish when the part is drawn or formed, but also a hard-to-remove scale.

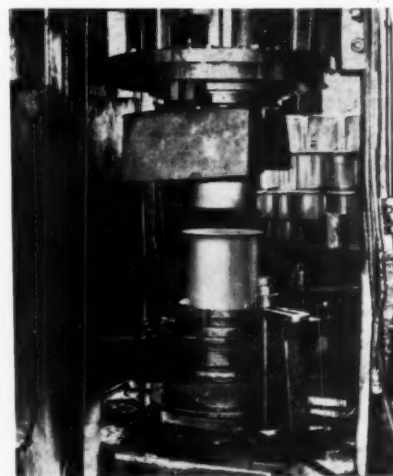
Chromium-nickel steels must be cooled rapidly from annealing temperatures. Air-cooling is safe for material up to 0.250" thick containing no more than 0.08 per cent carbon, and up to 0.078" thick with a maximum of 0.10 per cent carbon. Type 310 (25-20) should always be water-quenched.

Annealing chromium types

(1) Stainless 12

After equalizing at required temperature the work may be cooled by any method. This "process" anneal is suitable for most work. To full-soften stainless 12, a hardenable chromium type,

The container after the third and final draw. A large double-action mechanical press was used for this operation.





A process-annealing operation is required in production of Type 302 stainless steel cans. After first drawing operation, parts are annealed by heating to 2,050° F., holding at temperature for five minutes, and cooling rapidly by air.

employ a temperature of 1550-1650° F. After heating uniformly throughout, slow-cool at a rate of 25-50° F. per hour to 1100° F. Then withdraw charge from furnace and cool as rapidly as desired. The full anneal will develop a hardness of Rockwell B 75-83 compared with B 86-92 for the process anneal.

(2) Stainless 12 Al, 17, 27

Time at annealing temperature should only be long enough to heat the work uniformly throughout. These ferritic chromium stainless steels tend to become embrittled when held for a prolonged period above 1650° F. Quench in air or water. Avoid retarded cooling in the 750 to 1050° F. temperature range because it induces brittleness.

Pickling

When stainless steels are exposed to the high temperatures and gases of an annealing furnace, scale forms on the surface. Unless removed, it may be a hazard to subsequent fabrication and also affect corrosion resistance. The scale is tenacious and more difficult to remove than on carbon steel, and usually cannot be done in a single operation.

The first step is scale conditioning treatment; the second scale removal.

A widely used scale conditioning treatment consists of immersion in a 15-20 per cent by weight sulfuric acid bath at 150-190° F. for 15 minutes. This is followed by rinsing, which usually will properly condition the scale. Stubborn scale can be conditioned by various methods, such as alkaline solutions, molten caustics, and accelerators.

In scale removal there is a final whiten-

ing operation in a solution containing 6-15 per cent nitric acid and from 1/2 to 1 1/2 per cent hydrofluoric acid. For use with the chromium grades the acid solution may be used at room temperature. For chromium-nickel grades temperature should be maintained between 110 and 140° F. The hydrofluoric acid content increases the desirable whitening effect of the nitric acid. Time required varies from 2 to 30 minutes. Any remaining black smudge may be removed by hand or mechanical brushing. Finally, rinse in hot water to remove all acid.

The nitric-hydrofluoric acid bath used to remove scale and whiten the metal will "passivate" or chemically clean the surface. Drawn and formed parts, not annealed and scaled, may be chemically cleaned by degreasing and by immersing in a 10-40 per cent by volume solution of commercial nitric acid at 120-140° F. for 15-30 minutes followed by rinsing.

Forming

Stainless steels are worked on apron or press brakes with the same methods and procedures as used for mild steel. However, more power is required. Also great allowance must be made for "springback" in both chromium and chromium-nickel grades formed in the fully annealed condition. Springback increases progressively in the 1/4 Hard Temper and 1/2, 3/4 and Full Hard Temper chromium-nickel grades. Where springback in these higher tempers makes forming of large radii extremely difficult, the problem frequently may be solved by stretch forming.

Die practice

Many operators use a few inexpensive

standard dies and produce many different shapes without the cost of special tooling. It is important that dies be highly polished and free from marks and imperfections that would cause blemishes on the stainless steel surface.

Lubricants no problem

Whenever a press operation is essentially a drawing operation requiring lubricants, use the same compounds recommended for deep drawing.

Forming polished sheets

Polished sheets are easily marred in brake operations and the finish should be suitably protected. One good way is to apply adhesive tape to prevent metal contact with the stainless surface. Some operators paste ordinary newsprint or wrapping paper on the stainless surface, using paper hanger's paste. Specially prepared protective papers are available and can be reused.

Flanges for welding

Narrow flanges required for flange butt welding are hard to form at close tolerances. The answer to this is make the flange wider than required and trim after forming. This is often done when trimming off hold-down material from a drawn part.

Minimum bend diameters

This applies to the chromium-nickel types. Fully-annealed 17-7 and 18-8 sheet or strip can be subjected to a sharp 180-degree bend flat on itself either with or against the grain. There is no danger of cracking up to 3/16 or 1/4-inch thickness. Grades with higher chromium-nickel content, also the stabilized grades, are only slightly-less ductile in the annealed condition. to Page 68 →

A universal contour-forming machine setup for compression forming. The work is wiped into, or onto, the contour block by means of rollers mounted on the hydraulic ram. Forming takes place progressively with pressures of 25 tons or less. The same work done with conventional press equipment might require pressures of 1,000 tons or more.



Air-Conditioning and Refrigeration Exposition

four-day run at Chicago's International Amphitheatre drew record breaking attendance and had largest display in history

WITH the largest display in its history, the 10th exposition of the Air-Conditioning and Refrigeration Industry ended a four-day run at Chicago's International Amphitheatre, November 21, after drawing a record-breaking attendance of 14,752. Visitors came from every state in the union, Canada, and about 25 foreign countries.

The show, which included exhibits of 262 companies, exceeded in size the previous record-breaking show in Atlantic City in 1955 by some 13 per cent.

Heat pump production models shown

One of the highlights of the exposition was the showing of production models of the heat pump by many companies, a fact which indicated that this equipment for all-year heating and cooling may be finding a market for itself.

Sleeker, thinner room air conditioners, a wide variety of color for cabinets in the commercial refrigeration field, combination central heating and cooling systems, portable room air conditioners, and remote units for air conditioning systems were among the newer items which attracted visitor attention.

Comments to MPM editors from the exhibitors indicated that, from their standpoint, the show was a success.

Ned Marshall, J. N. Marshall Co., Denver, Colo., a factory representative for the Henry Valve Co., and Jackie Walker proudly smile their approval of the products manufactured by the firm.



R. F. Burke of Tube Manifold Corp. shows his product to D. S. Louria.



E. E. Goodrich, The Bastian Co., with a stainless steel soda fountain.

on breaks all records

EXCLUSIVE MPM PHOTOS

Here Richard Hafer, left, chief finishing engineer, and Richard Darrow, finishing engineer, of Reynolds Metals (backs to the camera) are doling out souvenir ashtrays that were just anodized in the tanks in front of them.

E. G. Pierce of Ebco in Columbus, Ohio demonstrates the "Hot'n'Cold" to an interested observer.



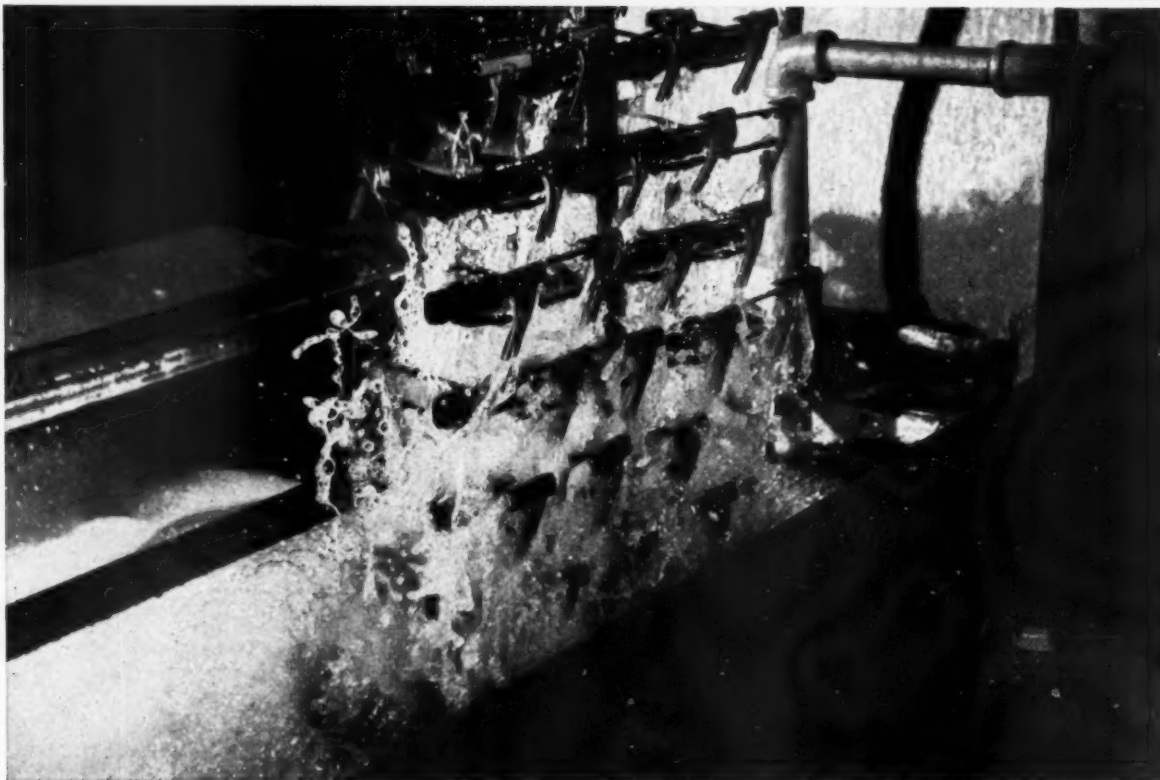
J. P. Derr, of Westinghouse Small Motor Division in Lima, Ohio, with their room air conditioner motor.

J. A. Hall of Reynolds Metals is proud of the appearance anodized aluminum makes on a textured refrigerator door.

It's an easy task to lift the new Emerson "Northwind" portable room air conditioners as demonstrated so well here.

PHOTO COURTESY EMERSON ELECTRIC CO.





Soak cleaners that eliminate solvent pre-treatment on most work

Step up production, lower cleaning costs

Faster, more efficient production often hinges on quick-working compounds and a minimum number of production steps.

Diversey heavy duty alkaline soak cleaners No. 404 (for brass and steel) and No. 909 (for all metals), save up to 50% of present cleaning costs on most work by eliminating solvent dips . . . eliminating hand cleaning and wiping . . . eliminating vapor degreasing. Fast, thorough, non-caustic cleaning action removes quenching oils, buffing compounds and other soil, making solvent pre-treatment operations unnecessary.

Instant wetting completely penetrates foreign matter and starts the cleaning action as soon as work is emerged. Soil is rapidly broken up and dispersed throughout the solution. It will not cling on draining work. Since Diversey soak cleaners work so quickly, they are well geared to

the demands of automatic equipment having short cleaning cycles.

The cleaning and draining efficiency of Diversey soak cleaners often bring unthought of economies. Dramatic proof of this performance superiority is, in some plants, work passes from No. 909 solutions directly into electro-cleaning baths without the need for an intermediate rinse! Of course, many operations require a rinse . . . in those cases, both No. 404 and 909 rinse waterbreak-free.

Both cleaners are absolutely safe on recommended metals. Even highly active metals such as aluminum are cleaned safely and with ease by No. 909.

There's an added margin of safety for your men also. Both No. 404 and No. 909 are mildly alkaline, non-toxic and non-caustic. They will not sting, burn or cause dangerous skin irritation.

For literature on these two products, write today to Metal Industries Department, The Diversey Corporation, 1820 Roscoe Street, Chicago 13, Illinois.

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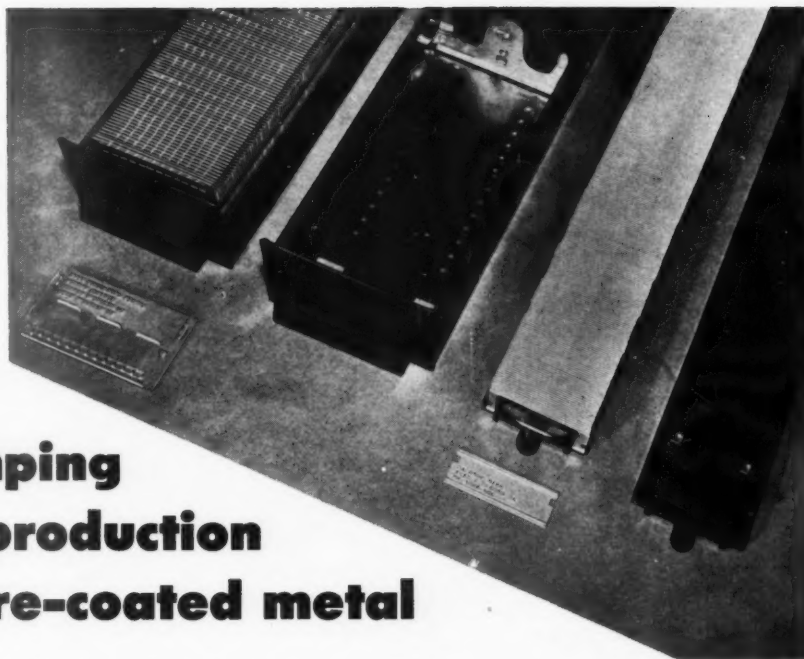
DIVERSEY.

**SOAK
CLEANING**



View of the two leading types of trays made at Universal Stamping Corporation. At left are frame-type (unloaded and loaded). At right are Speedamat style trays (unloaded and loaded).

PHOTOS COURTESY ENAMELSTRIP CORP.



Universal Stamping simplifies production with pre-coated metal

manufacturer of addressing plates, trays and cabinets produces over 1,000,000 products per year, using pre-coated metal coil

UNIVERSAL Stamping Corp., Westbury, N.Y., manufactures addressing plates, trays, and cabinets, and is one of the country's largest independent makers of these items for use in today's business. The company was founded twenty-five years ago.

Before starting to use pre-coated coil stock for its products, Universal parts were blank-formed and packaged for shipment to an outside source where they were color-sprayed and baked, and then returned to Universal for assembly.

With the development of pre-coated stock, the company decided to purchase this material on the outside and eliminate the necessity of sending fabricated parts elsewhere for contract finishing.

The company buys the pre-coated metal in the colors green, gray, and in clear lacquer, to meet the requirements of the various parts it produces.

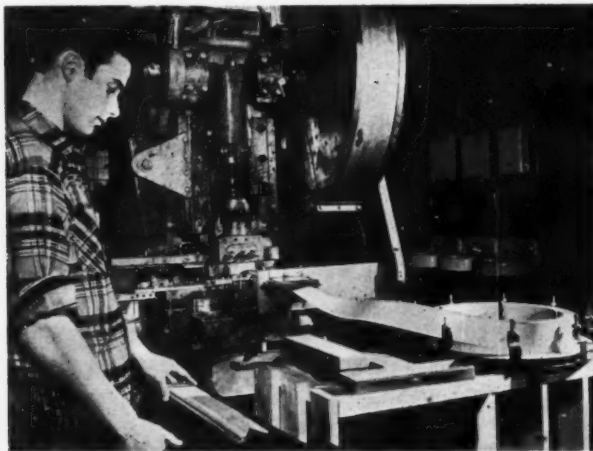
To keep pace with present production demands, 35 power presses are operated for blanking and forming, which are the principal steps of manufacturing.

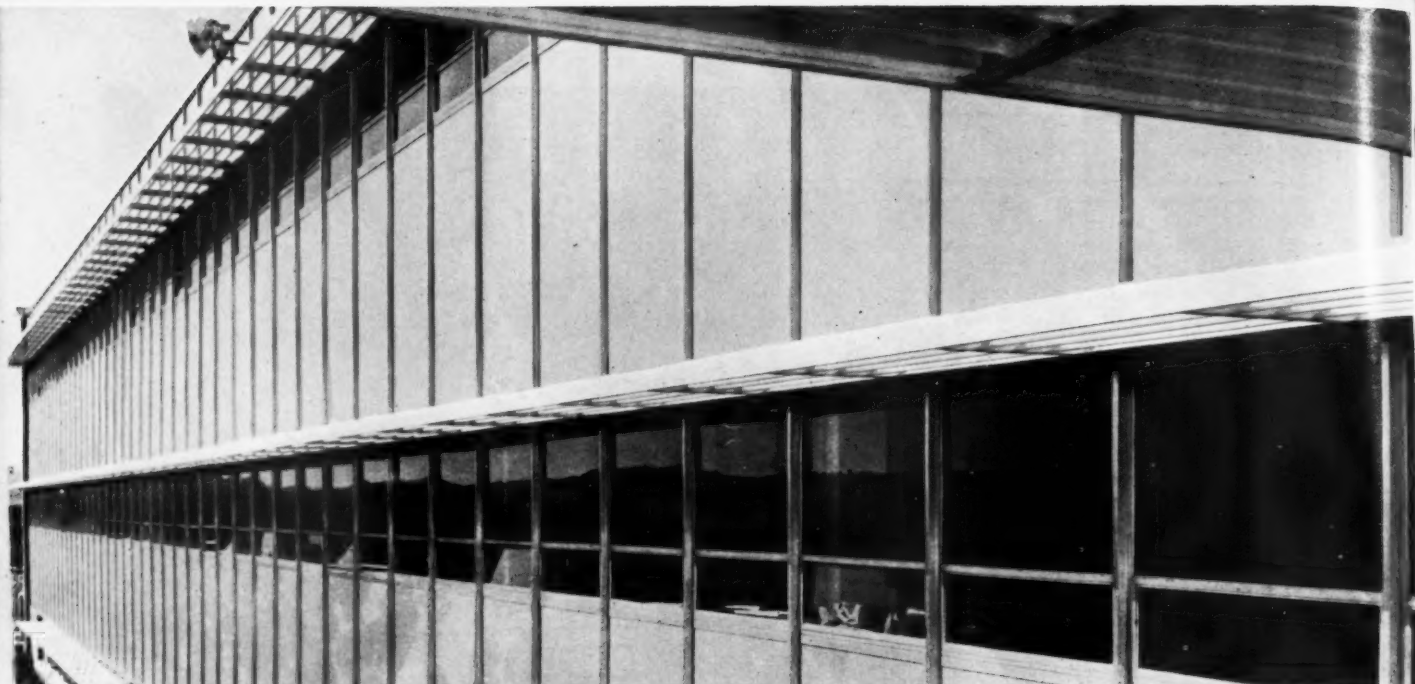
According to company officials at Universal, the use of pre-coated coil has eliminated waiting periods for parts to be returned from the finishing operations, and all fabricating and assembly operations can now be done within the firm's plant without extra handling. The company also claims that trays are now turned out with greater uniformity of color and higher quality of painted and lacquered finishes. They also state that costs have been drastically reduced as against their former method.

Press blanking out inserts for frame-type plates. Machine stamps out 75,000 inserts per day. Pre-coated metal is 3 $\frac{5}{8}$ " matte finished tin plate.



Press blanking out Speedamat style plate from 2 $\frac{5}{8}$ " pre-coated matte finished tin plate. Machine blanks out plates at the rate of 45,000 per day.





The lightweight cantilever sun shades at the sales-service and chemical laboratories of Phillips Petroleum Co., Bartlesville, Okla., screen out the direct rays of the sun, and assure light without glare. Protected by a clear butyrate lacquer, the aluminum louvers are expected to retain their original finish for years with a minimum of cleaning and maintenance.

Lacquer protects outdoor aluminum

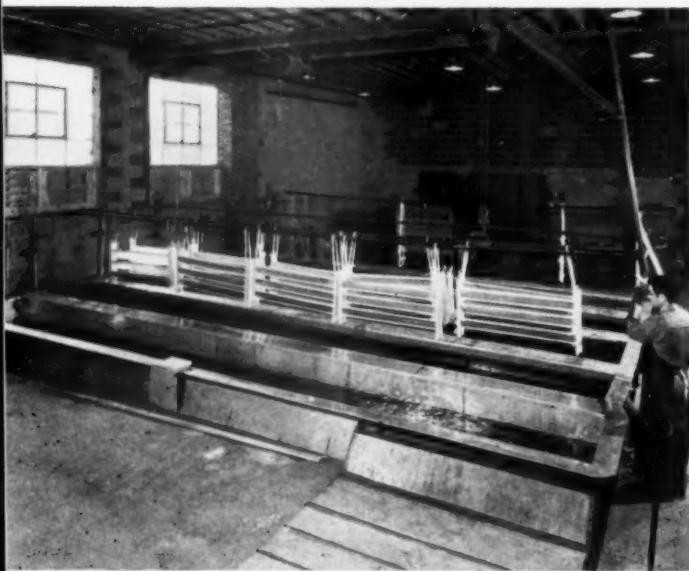
PHOTOS COURTESY EASTMAN CHEMICAL PRODUCTS, INC.

AFTER two years' experience on selected installations, one of the largest producers of extruded aluminum exterior louvers and sunshades for commercial buildings has adopted a non-yellowing lacquer, based upon a Half-Second Butyrate formulation, as a standard protective coating for its products.

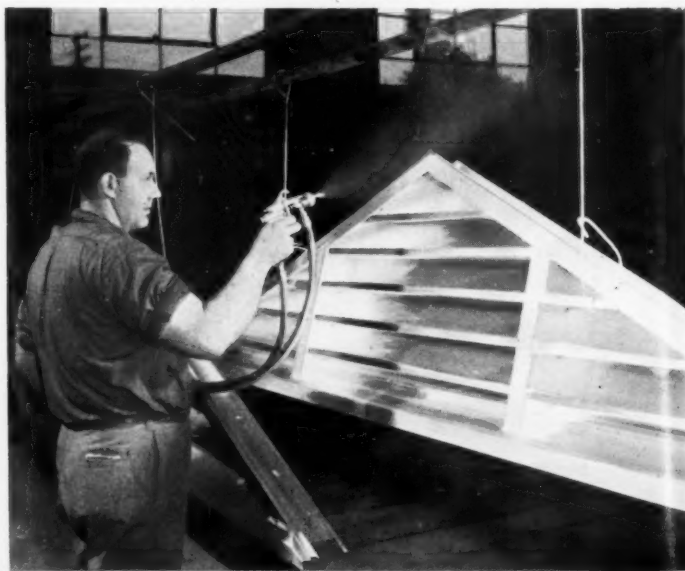
"Over two years' experience with butyrate lacquer has shown us that it will withstand the most rugged on-the-job exposure with no visible deterioration. However, it is imperative that the material be thoroughly cleaned and chemically etched," said E. C. Hallock, president of Construction Specialties. Construction Specialties, which has

complete in-plant facilities for cleaning, chemical-etching, anodizing and spraying, applies the butyrate coating by spraying after the aluminum surfaces have been cleaned and etched. The metal parts are then air-dried just prior to assembly. If aluminum surfaces have been anodized, the firm applies the butyrate as a standard procedure.

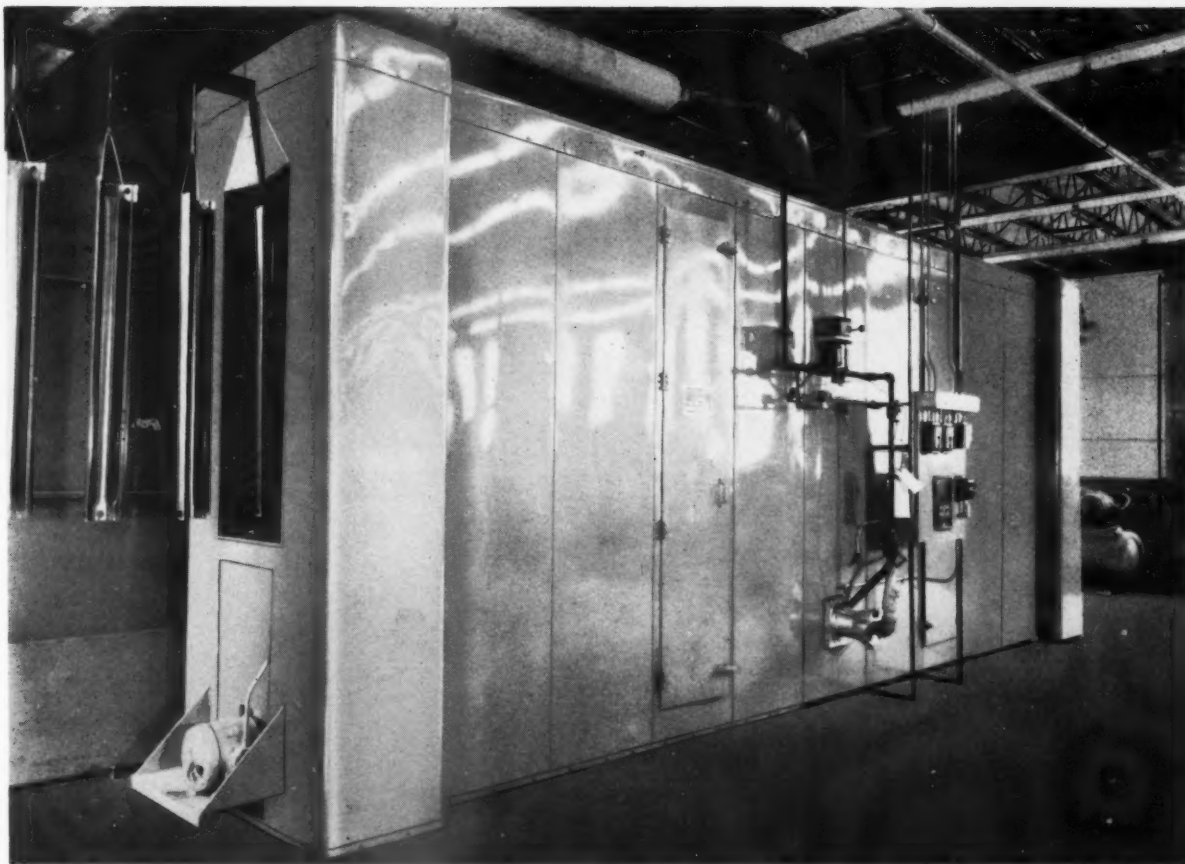
Sections of aluminum louver panels go through a series of washing and etching in these floor tanks before receiving their protective coating of butyrate lacquer. Traveling crane speeds production.



After a thorough wash and etch, this aluminum section is sprayed with a butyrate lacquer protective coating to preserve its surface from outdoor weathering hazards such as oxidation and corrosion.



INTEGRATION



Perhaps you'll agree that one of the most important phases of manufacturing is to blend your production facilities into a smooth-running operation.

This is specially essential in your finishing system. It takes a complete understanding of your product—and the steps to produce the quality of finish required—to successfully integrate finishing ovens, conveyors, washing machines, spray booths, etc. The end result is a profitable, quality product—with a minimum operational cost.

ALWAYS CONSIDER THESE SIX QUESTIONS

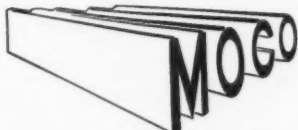
- Does the finishing system have capacity for increased production?
- Is the equipment simple enough to allow easy maintenance?
- What type of materials handling is best suited for your process and production?
- Are floor space requirements at a minimum?
- Has the system been engineered for lowest operational cost?
- Does safety equipment provide sufficient protection for your plant and personnel?

MOCO has long given careful consideration to all of these factors—and countless others. Engineering to your specific product requirements is always "the starting point."

When you are considering the purchase of a finishing system—why not consult with a qualified MOCO engineer and learn more about MOCO Integrated Finishing Systems.

Here's Valuable Information

This interesting bulletin on MOCO systems is yours for the asking. Why not write today?



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MICHIGAN OVEN COMPANY

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MPM Suggestion Box

Improved line of small "PG" wheels stronger, more versatile



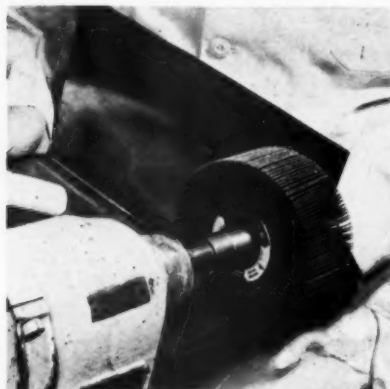
Simple adapter kits, such as the one shown containing a washer and an end cap nut, easily fit recessed flange "PG" wheel to any spindle.

DISPOSABLE flanges and a design that permits flush sanding are two major improvements in its line of small coated abrasive "PG" (polishing and grinding) wheels for finishing and maintenance operations, according to Minnesota Min-

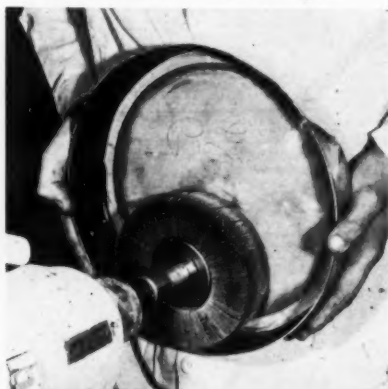
ing and Manufacturing Co., St. Paul, Minn.

The new disposable flanges, which lock the wheel's coated abrasive leaves securely in place, are factory-installed and bonded to the core. This construc-

Attached to bench lathe, recessed flange "PG" wheel is available for off-hand operations "head-on," or those requiring a finish into a right angle corner. Wheels may be fitted to portable tools.



For contour sanding, where end of wheel must be in contact with flush surface, small wheel is suited; takes contour of area being finished; and holds contour until reshaped.



tion technique makes it unnecessary to remove the flanges when a wheel change is required; it's simply a matter of slipping the "PG" wheel on the spindle and tightening the cap nut. Performance characteristics of the wheel remain unchanged; and prices are not affected by the improved design.

In addition to offering the user faster wheel changes, and eliminating the necessity for stocking extra flanges, the new disposable flanges provide hub strength not previously available on the small "PG" wheels.

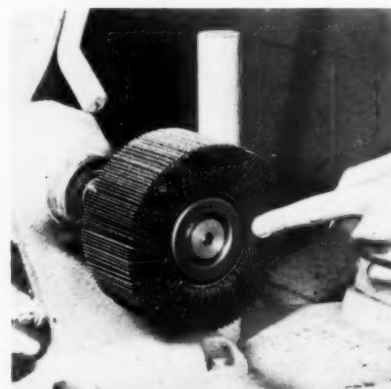
Another feature of the newly-designed wheels is that the flanges are recessed into the side of the wheel. The end cap nut is also recessed, so that the wheel can be used flush against a surface, as in finishing a right angle or corner. The new recessed-type flange also allows the wheels to be ganged more closely to obtain a wider abrasive surface. The recessed flanges are available on all diameters of the small (6" through 10" dia.) line, and on widths 1½" and up.

Specifications for the new flanges include a standard 1" center hole on wheels 6" in diameter; and a standard 1¾" center hole on wheels with a 7, 8, 9 or 10" diameter. Wheels 11" and larger — known as standard or large "PG" wheels — will continue to use changeable aluminum flanges.

Three new adapter kits designed for use with the disposable flange-type "PG" wheels make it possible to fit the wheels onto any portable tool or bench lathe.

Further information about the small "PG" wheel line is available from Dept. MPM, Minnesota Mining and Manufacturing Co., Dept. F7-268, 900 Bush Street, St. Paul 6, Minn., or the Special Projects Editor, METAL PRODUCTS MANUFACTURING.

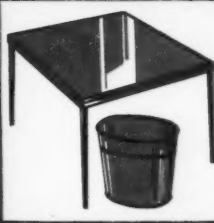
Wheel with recessed flange and end cap nut. Steel flange is bonded into position, cannot come loose from wheel, and is thrown away with core when wheel is used up.



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better
with



FAIRMONT Embossed ALUMINUM



* Actual Size
Square Finish
(Write Pattern on Reverse Side)

* This is one of several distinctive embossed patterns providing new eye-appeal, added rigidity and a permanent finish that constantly resists damage during fabrication in your plant, and for years to come in the hands of satisfied users. The finish is a part of the aluminum and can't wear off, crack or chip.

In applications for television sets, appliance parts and trim, furniture parts, housewares, and others too numerous to mention, Fairmont embossed pattern aluminum is receiving widest acclaim.

Other Fairmont 1100, 3003, 5005, 5050 and 5052 wrought aluminum sheets, coils and circles, recognized for highest quality and uniformity, are available for delivery to meet rigid manufacturing schedules.

Sales offices in principal cities

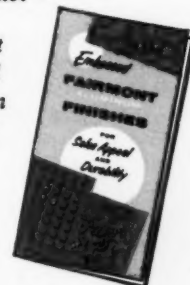
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the pamphlet—

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Embossed
Aluminum
Finishes"



The metal-foam-metal sandwich for appliance cabinet construction

an MPM staff progress report on a development that has
the attention of the home appliance cabinet makers—

UNFOLD PAGE 47 FOR DRAWINGS ▶

IN October, 1956, the trade press was reporting the plastic foam sandwich construction for refrigerator walls, as fathered by the Westinghouse Refrigerator Division at Columbus, Ohio (*See this publication, October, '56, page 61*). As of late 1957, we find "metals" taking over the job of serving as "skins" for the sandwich type construction. While some companies are in the development stage of the comparatively new type construction, others are announcing production models for 1958.

The names Westinghouse, Amana, Frigidaire, Norge and Kelvinator are prominent in discussions relating to this type of construction for refrigeration cabinets.

A metals fight

With metal skins coming into the picture for appliance cabinets to replace the plastic skins first suggested, there may be a healthy fight for supremacy among the available metals for this purpose, in the event that production of the new type construction becomes important in relation to total appliance production figures.

Much of the early work has been done with aluminum with a view to using painted exteriors and anodized interiors. Depending upon the type of product involved (free-standing or built-in, domestic or commercial), other metals may be expected to go after the business if it becomes important. For exterior skins, painted steel and painted aluminum will certainly be in contention. For certain applications stainless steel will be out for business, and a frit manufacturer reports that porcelain enamelled steel may prove suitable due to the "square look" of the new appliances and the extensive use of bright metal trim on radii.

Due to the fact that flat sheared panels are used for interior construc-

tion, any of the materials named could readily be used, depending upon the decisions of manufacturing top management and engineering and upon the end use requirements.

While the refrigerator is the product getting the full engineering attention for the current application of the "sandwich system," proponents of the system feel that it is just as readily adaptable for other types of appliances of "square" design where insulation is an important factor.

In the design of the refrigerator, the door represents the most revolutionary change. Here again, any desired type of material can be used, so this brings the possibility of a return to metal inner doors.

Further reduction in tooling costs

In the late 1956 reports on the plastic sandwich construction, reduced tooling cost was represented as one of the chief advantages. Westinghouse, for instance, tooled two models (horizontal and vertical) at a total cost of \$350,000, including all of the interior parts, doors, and refrigerating system. Westinghouse engineers stated at the time that it would have cost approximately \$2,000,000 to tool these models for conventional construction.

Leaving out the operating parts of a refrigerator, a reliable source indicates that tooling as low as \$12,000 for a cabinet may be possible as a result of further developments in the system and the change to metal skins. It is reported, for instance, that tooling for an 11-foot refrigerator cabinet (tooled to produce 20,000 units per year) involved a total die cost of only \$30,000. This included the tools for the bottom, the wrap around, the shelf, and the door.

If and when the sandwich type construction becomes an important factor

in the production of home appliances, or similar fabricated metal products, it seems apparent that there would be a radical reduction in the production facilities required, as well as in the tooling.

Simplicity personified

As a review of the basic idea involved in the construction of a sandwich type cabinet, here is an outline of the basic steps involved: The sheet metal outer skin of proper length is first laid down. Then in the event that high density expanded polystyrene insulation is being used, it is next applied, and V-cut as required. Next come the individual metal panels for the inner skin, as previously sheared to size.

Epoxy and urea base adhesives are employed for appliance "sandwich" cabinet construction and bituminous resins for some other applications.

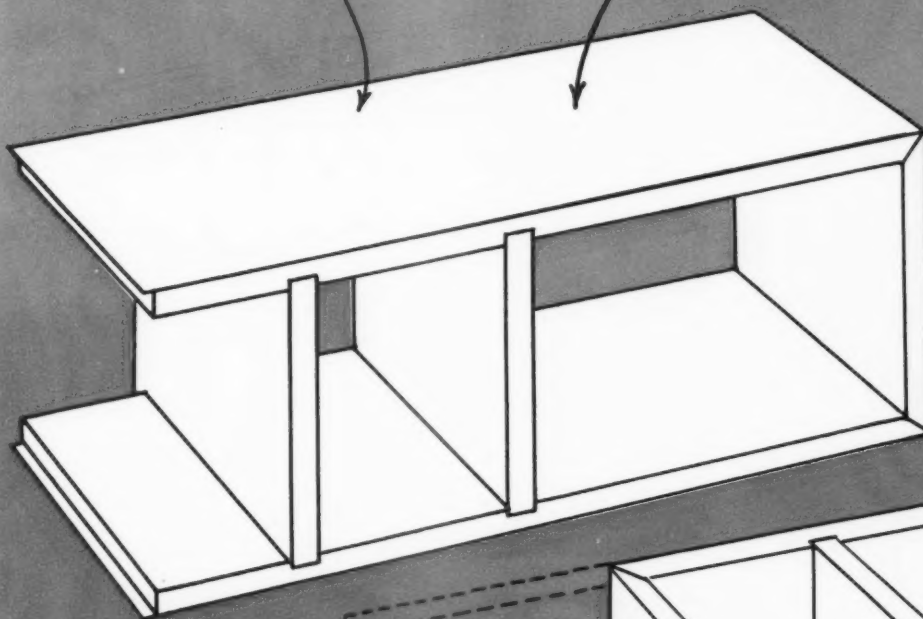
A simple wrap-around operation for the completed sandwich forms the two sides and top of the refrigerator cabinet. An intermediate step is the placing of back and shelf panels as required in their proper position.

When expanded bead insulation is used, the outer skin is first laid down as a starting point. Individual top sheets (inner skins) are then fastened to the top of a die. Beads of foam type insulation are then introduced. The beads are expanded in the die, with V-shaped die blocks used to stop the flow of material. Later steps in fabrication are the same as those outlined for the high impact polystyrene sheet insulation.

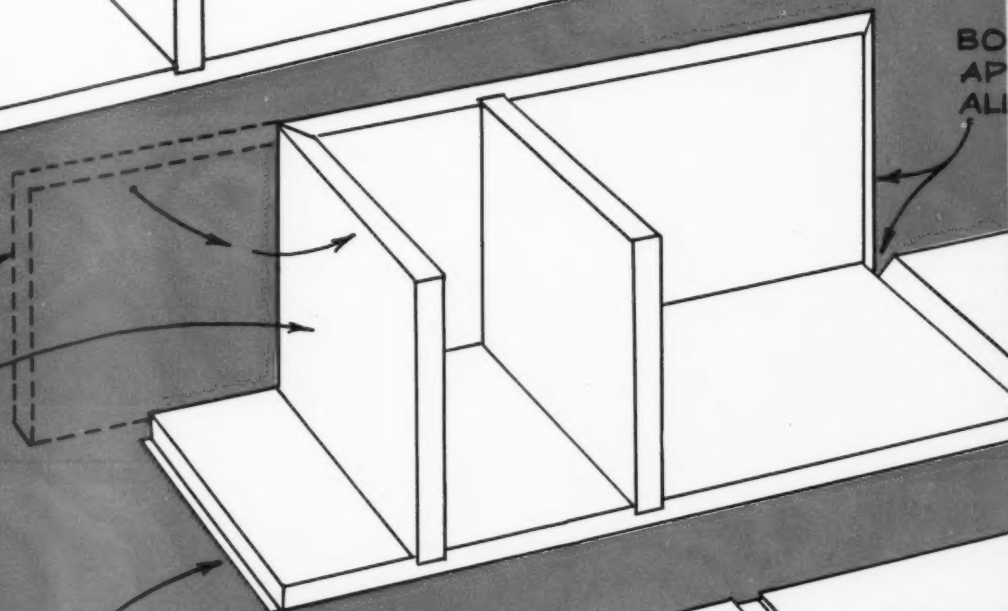
Finish — before or after?

It has been suggested that cabinets of this type construction can be finished either before or after fabrication in the event that organic finishing materials are used. To the cautious finishing engineer this might give the edge to

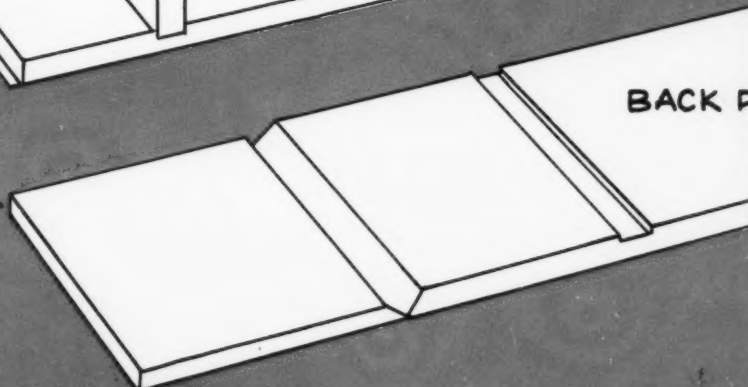
WRAPPER PANEL FOLDED AROUND
OVER SHELF AND BACK PANEL.



BACK PANEL FOLDED
AND WITH SHELF
PANEL PLACED INTO
POSITION OVER
WRAPPER.



PANELS FABRICATED
IN THE FLAT.



THESE MPM DRAWINGS . .
were made from drawings
and technical information
supplied by A. N. Williams,
Haskellic Manufacturing Corp.

The sales
appeal of



Pemco Covercoats

starts here!



In the newest and most completely equipped laboratory in the industry, Pemco's staff of Research and Development Engineers apply their knowledge and experience to one basic objective—BETTER, AND STILL BETTER, PORCELAIN ENAMEL FINISHES THAT HELP SELL MERCHANDISE. These engineers work for you, in the development of new enamels, in perfecting application techniques, in solving possible production problems BEFORE they arise . . . to keep your production costs down.

This is "Pemco Service"—available to you through the Pemco Engineer in your area.



Manufacturers of "The World's Finest" Porcelain Enamel Frits, Glaze Frits, Coloring Oxides, Screening Pastes, Body and Glaze Stabs, Underglaze and Overglaze Colors, Vitrifiable Glass Colors.

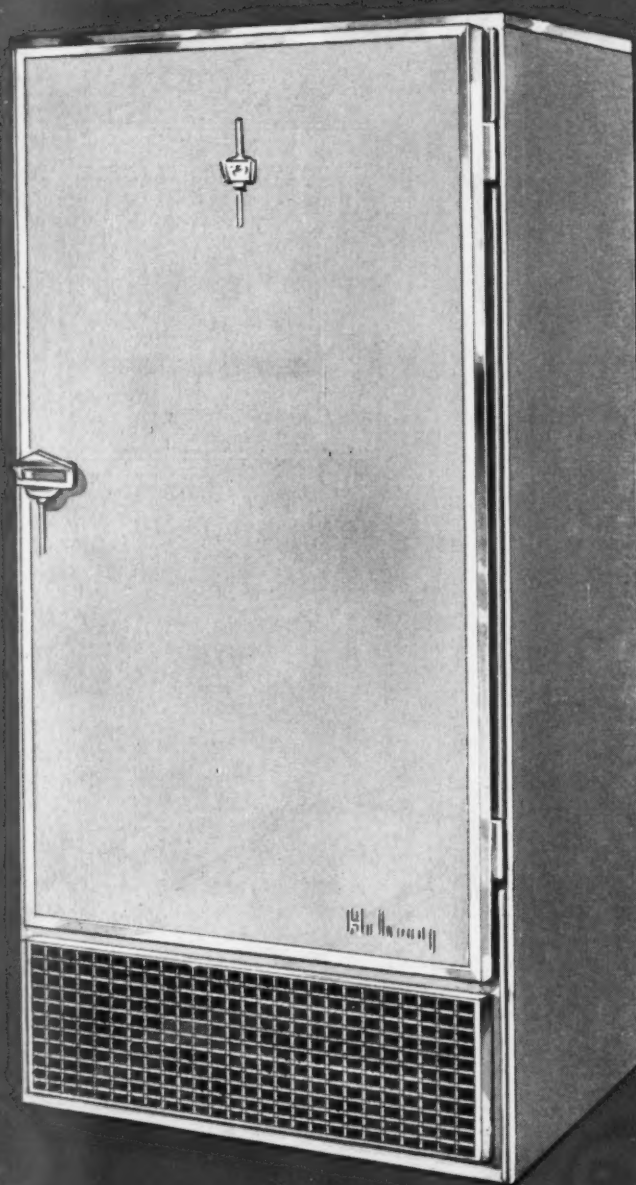


corporation

SALTIMORE 24, MARYLAND

THE BATTLE OF MATERIALS

Should the "sandwich" cabinet become an important production item, watch these metals and materials battle: Aluminum, carbon steel, stainless — Prefabricated and foamed-in-place insulation — Anodizing, organic and ceramic finishing — Extrusions and rolled trim — and possibly Perforated or expanded metal.



aluminum or stainless metal, due to the question of edges, if finishing were done after fabrication.

Finishing after fabrication would call for air dry or low temperature organic finishes due to the fact that baking temperatures could not exceed 160° F.

Obviously the use of pre-finished metal skins would completely change the finishing set-up, for while it would involve only the finishing of flat panels, some of these would be in the nature of fourteen feet and up in length.

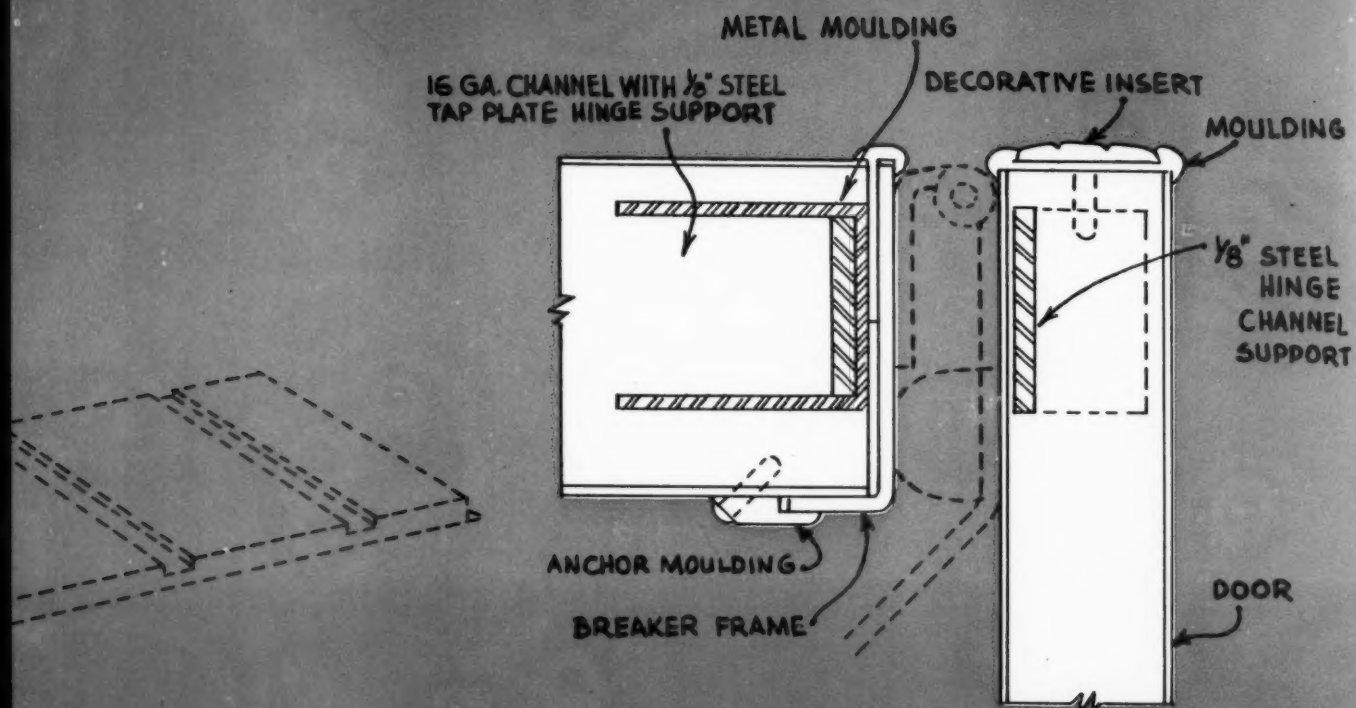
Other applications

In addition to the present activity on sandwich construction for refrigerator and other appliance cabinets, the same general panel construction, involving foam type insulation and metal skins, is being suggested for a wide variety of applications from commercial heating and cooling equipment to refrigerated trucks and architectural curtain wall panels.

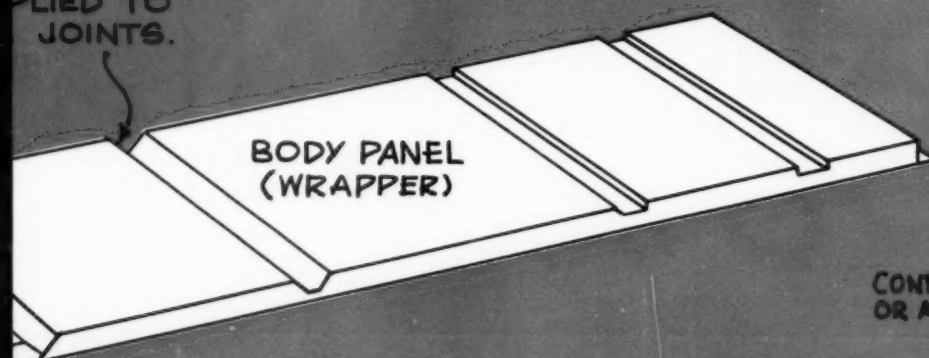
The adaptability of the method to a

great variety of materials, both in base metal, surface texture and finish, leads to increasing interest. Claims for structural strength, light weight, low thermal conductivity, freedom from warping, and resistance to vermin, moisture, etc., give this system appeal to engineers and architects.

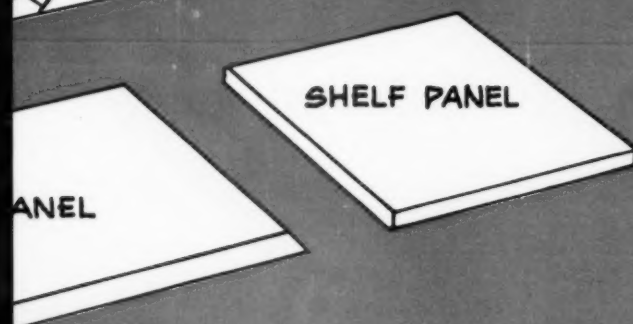
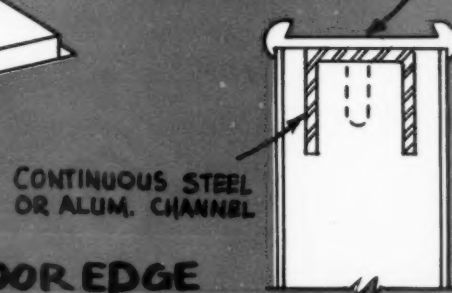
The purpose of this feature is to serve as a progress report, and as additional developments of significance are made available to our editors, later reports may be expected. (*unfold for details*)



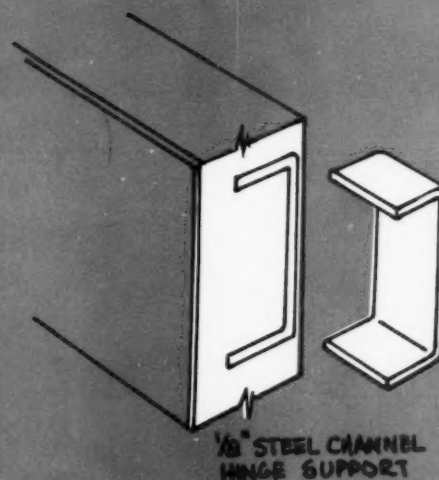
ENDING MATERIAL
PLIED TO
JOINTS.



MOULDING FASTENED WITH
SHEET METAL SCREWS.



REFRIGERATOR CABINET



MPM report on the IAM Management Seminar

an executive development program in capsule form moves from Ohio State University to Washington for the Institute of Appliance Manufacturers year-end meeting

MEMBERS of the Institute of Appliance Manufacturers met in Washington, D. C. for their winter meeting on December 1, 2 and 3. The formal program for December 2-3 consisted of a year-end management seminar which was an abbreviated version of Ohio State University's executive development program, as sponsored by the College of Commerce and Administration in cooperation with the Ohio Manufacturers Association.

Four Ohio State University professors, whose backgrounds include practical management experience as well as the academic phases of business, combined with industry leaders to head each of four sessions included in the seminar.

Monday's first session included "The Economic Environment" with Dr. Clifford L. James as principal speaker and Leonard Raulston, President of IAM as panel chairman. The second session on Monday under the subject title of "Management of the Human Factor" was led by Dr. Michael J. Jucius and John F. Lane, Washington attorney, with F. H. Guthrie, President of Newark Stove Company as panel chairman.

Tuesday morning's session had Dr. John K. Pfahl as the chief speaker on the subject "Financial Management," with Robert H. Norris, President, Dearborn Stove Company as panel chairman. The closing session on Tuesday afternoon had as principal speaker Dr. William R. Davidson, seminar director, who discussed "Marketing Management." A. B. Ritzenthaler, vice president of The Tappan Stove Company, was panel chairman.

Nothing can prevent growth in consumer goods industry

Dr. James, in discussing the economic environment for 1958, was not at all pessimistic about the outlook, although he did indicate that improvement over 1957 would be slight. He contends that with population growth, gross national product, labor productivity and income, government expenditures and construction being what they are, there is little that the consumer goods industry can do to prevent growth between now and 1965.

Dr. James expects that there will be approximately 600,000 added to the labor

force for 1958, but that in spite of this addition to the labor force, unemployment will not exceed 4%. He feels that it is the long trend growth that will be pulling the economy up. The population will go from 160,000,000 to 190,000,000 between 1953 and 1965. \$365,000,000,000 gross national product in 1953 will grow to \$535,000,000,000 in 1965 (these figures do not take into account increased prices).

"It isn't wise," said James, "to concentrate too much attention on what is happening to one industry or one segment of the industry. You should look at the over-all economy growth picture." James stated that while consumer durables are out of balance temporarily with the general trend upward, this should not be construed as a permanent "block" in the trend.

This speaker pointed to the fact that the appliances in general are not realistically priced to make a profit. He feels that vigorous price cutting is *not* the answer to the problem. He feels that attention must be paid to cost reduction in manufacture and the use of every possible innovation in connection with

General view of luncheon in the Shoreham's Palladium Room, with speakers' table in right background.





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Shining beauty and durable strength are the perfect combination in titania porcelain enamels. You're more than covered on both counts when TITANOX non-pigmentary titanium dioxide is in the frit.

Along with tough, thin films—in gleaming white or smooth pastel—TITANOX-TG and TITANOX-TG-400 (for

blue-white) assure economies resulting from free flow, easy handling and strict uniformity of all properties. It's obvious on the surface . . . any appliance looks better, sells better, when TITANOX is on the job. Titanium Pigment Corporation, 111 Broadway, New York 6, N. Y. Offices in principal cities.

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5211



At the speakers table at one of the IAM seminar luncheons: (left to right): F. Donald Hart, Dr. William R. Davidson,



Mrs. Leonard Raulston, Paul Wooton, Pauline Dunkel, Leonard Raulston, Dr. Clifford L. James, and A. B. Ritzenthaler.

sales. He feels it will be impossible for manufacturers to operate profitably in 1958 with the same program used for any past year.

John P. Wright, President, Florence Stove Company, and member of the first panel, observed that few companies in the range industry are spending enough time in research. He feels that from one to two per cent of the sales dollar should be set aside for research activity — "so that the whole industry could do research instead of a few companies." Wright voiced the opinion that the real reason a woman does not go out and buy a new range to replace a twenty-year-old one is that she doesn't see enough improvement in the new ones in the way of time saving and other benefits. He pointed to the fact that gas ranges were replaced at a twenty-year rate in 1955 and at a fifteen-year rate previously. Built-ins will raise an additional problem in regard to length of years to be used before replacement.

Give labor only what it earns

Human relations mean teamwork, according to Dr. Jucius of O. S. U., and there must be significant contributions

by labor, middle management, and top-management. He believes that management responsibilities will tighten in 1958 because of world tensions and uncertainties, a boiling national political pot, continued union pressures, and increased company competition.

There must be better business philosophy and more dynamic guides for personnel management in all of its phases, according to this speaker. The principles laid down must be fair; they must not underestimate the strength or intelligence of labor, but *must give labor only what it earns*. One of the points stressed by Dr. Jucius is the fact that it is not enough to set up the right program, but it must be effectively communicated to both executive and plant personnel.

W. F. Rogers, President, Crown Stove Works, and Earle B. Kaufman, Treasurer, Boston Stove Foundry Company, both emphasized the requirement for effective communication. Rogers stated that for the smaller company the use of bulletin boards and personal contacts can be effective. Kaufman said that while few small and medium sized companies have a staff setup for personnel relations, it remains extremely impor-

tant that management policies be carried through the foremen to the man in the plant. For example, when labor saving machinery is installed, it is vitally important that a policy and plan be laid out in advance to take care of the man whose place is taken by the improved machinery.

Both good and bad times

within the next ten years

According to Dr. John K. Pfahl of O. S. U., there are going to be some good times and bad times within the next ten year period, nothing as bad as 1933, he said, but possibly as good as 1955. In his discussion, Pfahl showed his strong preference for the return-on-invested-capital theory as compared to the return-on-net-sales theory.

During his discussion, Pfahl showed an actual financial statement, representing one of the leading range manufacturers, and covered a number of interesting points in the statement. For example, a 400% increase was shown in sales (dollar value) during the last ten years, but during the same period there was a 1000% increase in the accounts receivable, and approximately a 700%

General business session at the IAM management seminar.



increase in inventory. The point he illustrated was the magnitude of change in the last ten years in the financial picture. "We must look forward," he said, "to at least the same or a greater change in the next ten years. It takes an increasing amount of capital to maintain a company's position in the field, and, of course, even more to show progress."

Dr. Pfahl is of the opinion that too many business firms have accountants for one basic purpose—that is, for tax purposes. What we do for tax purposes, he said, accounting-wise, is to fit into the government set-up as established for their purposes. That is not necessarily the best for the business. Pfahl feels that too many accounting decisions are based on what the government requests for tax purposes, rather than on a reasonable basis for the running of a business. His point is that the real purpose for accounting is to help the manager make decisions with regard to his own business. In addition to using the financial statement for financial planning, it should also be used to develop a budget for cash operations. Good cash budgeting will give the best possible arrangement with the bank on a loan, and loans should be planned in advance instead of at the exact time when needed.

In Pfahl's opinion, it is not particularly smart, financially, to have a lot of cash in the bank, as such. It is better to have short term investments.

Pfahl referred to the fact that Du Pont expects a 20% return on its investment, before taxes, on all capital, and 11-12% return after taxes. Two ways to realize an increase in the return are: 1) increased sales without any additional investment, 2) decreased expenses with the same or greater sales. You can also decrease the amount of capital you have invested, with no change in the sales picture.

Referring back to his financial statement, Pfahl said that when accounts receivable increased 1000% and sales

only 400%, it represented a red flag to management, in that the company was actually serving as a credit institution.

The importance of inventory control was another point stressed by Dr. Pfahl. He discouraged speculative buying on the part of manufacturing firms, indicating that while there is a chance for profit through buying of raw materials, there is also a chance for loss, and that a better way is to set up to buy at current prices as needed.

Pfahl stressed the fact that only *profitable* sales are advantageous to a corporation. He cited Goodrich Rubber as being only one-fifth the size of Goodyear, yet making more profit. Goodyear, he said, wanted a billion dollars in sales and went out to get it, while Goodrich was satisfied with two hundred

which cannot be justified by the market potential," then turn around and say what must be done to take the "waste" out of distribution. Actually, he said, what they are talking about is not taking the waste out of factory distribution, but out of the distributor and dealer or sales channels. In Davidson's opinion, the value added by marketing is qualitatively as real and quantitatively as great as the value added by manufacture.

Since marketing must begin before manufacturing can be started on an intelligent basis, it is better, he said, to have control of marketing situations than to own manufacturing establishments. Under the old concept, it was up to the salesman to sell the production of a factory. The salesman was a peddler, and a genius was the man who

built the factory. In this day and age, any one with money can set up a manufacturing plant and produce in his factory any type of finished product. On the other hand, if one controls a marketing situation, they can always arrange with a manufacturer.

Following are additional pertinent statements selected from Mr. Davidson's talk:

The market is never saturated until it is believed to be. There is no lack of need as long as it is considered something useful or desirable, instead of

something that is necessary.

It is well known in advertising that there is a very definite concept in the minds of the people, and it may be entirely different from that of the manufacturer of the product. The advertising man must be keyed to the *typical* buyer, but individual selling should be tailored to the *individual* buyer.

The use of the term "legitimate" dealer indicates a static type of distribution system. This reference would make the supermarket an "illegitimate" market place since 1933. The officials who insist on picking one certain channel or outlet mean that, unless they can get an increasing share of that outlet, they can do nothing but lose in the long

to Page 80 →



Group discussing management seminar proceedings are (left to right) G. E. Mumma, R. M. Leach, W. R. Lawrence, and R. A. Ainsworth.

fifty million in profitable sales.

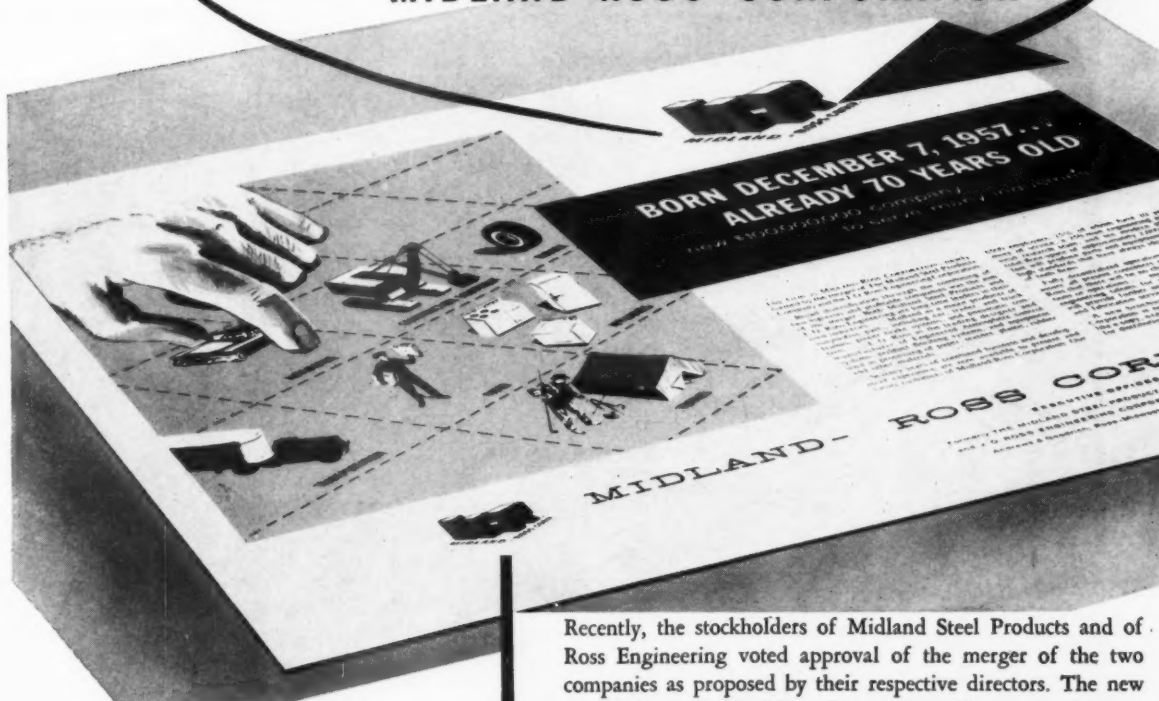
Is marketing an "added" cost?

Marketing managers and merchandising men will be in sympathy with the comments of Dr. William R. Davidson of O. S. U., who spoke at the final panel discussion of the seminar, on the subject of marketing management for 1958. Davidson cited the fact that many people think the product is finished when it is manufactured, and that marketing is added cost. Form utility, he said, comes from manufacturing, but place, time and position utility are a matter of marketing.

Davidson cited the fact that management men often speak of their wonderful automated production lines, "many of

**The Midland Steel Products Company
+ J. O. Ross Engineering Corporation**

MIDLAND-ROSS CORPORATION



This Significant Merger involves No Lessening of Pre-Merger Services

Recently, the stockholders of Midland Steel Products and of Ross Engineering voted approval of the merger of the two companies as proposed by their respective directors. The new corporation is Midland-Ross Corporation. Often mergers change things, but in this case, there is no lessening of or deviation from pre-merger service. In fact, with the combined engineering, research and development skills, there will actually be a broadening of service.

Ross Engineers... the same Ross Engineers you know... will continue to work on problems involving 'Engineered Atmospheres' as they relate to drying, baking, curing, converting, heat-treating and similar operations. The Ross Service will be as comprehensive as before... experienced specialized engineering, modern manufacturing facilities... all in the field of Engineered Atmospheres.

The same service policy applies to the subsidiaries or affiliates listed in the shield shown below. The only change in the entire family of Ross Complementing Services is that J. O. Ross Engineering is now a division of the new corporation. Ross Service will continue as if nothing corporate-wise has taken place.

THE ROSS GROUP OF COMPLEMENTING SERVICES

J. O. Ross Engineering, New York
Andrews and Goudrich Division, Boston
Ross Engineering of Canada Limited, Montreal
Ross Midwest Fulton Corporation, Dayton
Carrier Ross Engineering Company, Ltd., England
John Waldron Corporation, New Brunswick, N. J.

J. O. ROSS ENGINEERING

Division of The Midland-Ross Corporation

444 Madison Avenue, New York 22, N. Y.
ATLANTA • BOSTON • CHICAGO
DETROIT • LOS ANGELES • SEATTLE

*Now for the first time you can WASH and DRY your clothes
in sparkling Lifetime Stainless Steel
...thanks to the new Golden Anniversary*

SPEED QUEEN

Royal Pair



Bowl-shaped STAINLESS STEEL TUB
Only Speed Queen has it!




New STAINLESS STEEL DRYER DRUM
Only Speed Queen has it!



With the Speed Queen brings you the most highly-perfected automatic washer of all time! Wash, to suit, means greater convenience and faster operation than any other. Some of the washer's main features are: Lifetime Stainless Steel Tub - Automatic Last Rinse - Automatic Extra Cold Water - Automatic Reducing Spin - Wash "W" Wash Switch - Steam Heat - Tumble-dry with 5-year guarantee - Speed wash and spin - 11, 7, 4 and 3-minute washing - Water level control - Water temperature control.

Distaching the washer is easily and built-in quality is the new Golden Anniversary Dryer. It's the first dryer to bring you the many advantages of a stainless steel drum. Now you can dry your clothes as well as wash them, in smooth, gleaming Stainless Steel. See this remarkable Royal Pair at your Speed Queen dealer. For literature, write Speed Queen, a Division of McGraw-Edison Company, Ripon, Wisconsin.

McGraw-Edison

Steps

The above advertisement, reproduced from a recent issue of the Saturday Evening Post, kicked off Speed Queen's year-long observance of their Golden Anniversary and introduced the "Royal Pair"—first automatic washer and dryer with a stainless steel tub and a stainless steel dryer drum. Speed Queen is a division of McGraw-Edison Company, Ripon, Wisconsin.

REPUBLIC



World's Widest Range of Standard Steels

Out with Republic Stainless

Utilizes the plus-values of Republic ENDURO® Stainless Steel to gain a competitive edge

Speed Queen, first to use a stainless steel bowl-shaped tub in an automatic washer, now has designed an automatic dryer with a stainless steel drum.

Fabricated from Republic ENDURO® Stainless Steel, the tub and drum in Speed Queen's Royal Pair provide maximum protection for clothes in the washing and drying operation.

Stainless offers the greatest resistance to rust and corrosion of any commercial metal. And because ENDURO is solid stainless steel, there is no surface to wear away. There's never any danger of flaking, chipping, peeling or cracking. ENDURO's smooth, hard surface protects the finest and sheerest of fabrics.

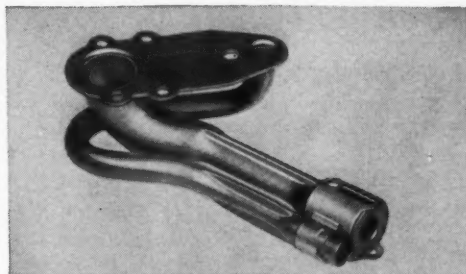
The inertness of stainless is another plus-value that Speed Queen has built into its new washer and dryer. It is neither affected by nor does it react with dyes, bleaches, soaps or detergents. That is one reason why textile manufacturers and commercial laundries have been using ENDURO equipment for years.

What about your product that needs to gain a competitive edge? Use Stainless to obtain freedom of design. Its extremely high strength-to-weight ratio permits use of thinner, lighter sections to reduce weight and bulk. Use Stainless for trim and brightwork. It has the strength to withstand the abuse of every day use. Use Stainless for functional parts. Strength, heat-resistance and corrosion-resistance make it the perfect metal for any application involving heat or cold. Use ENDURO to give your product sales appeal.

Republic metallurgists and engineers are available to assist you in selection, application and processing of stainless. No obligation for their services, just mail the coupon. Or contact your Republic ENDURO Stainless Steel Distributor.

STEEL

and Steel Products



RANGE BURNER MANUFACTURER STEPS OUT with Republic ELECTRUNITE® Welded Steel Tubing. Harper-Wyman Company uses it in forming lightweight, easy-to-clean venturi burner tubes. The company subjects ELECTRUNITE to a hairpin bend of 1¼-diameter radius, then a four-way crimp, followed by punching, notching and welding. Uniform, predictable ductility avoids stretch and collapse as tubing is severely bent and formed. Close tolerances of O.D. and I.D. avoid die and mandrel troubles. Our engineers will help you design ELECTRUNITE into your product to speed production, cut costs and improve performance. Mail the coupon for facts.



SOFT-DRINK DISPENSER MANUFACTURER STEPS OUT with Republic Electro Paintlok®. Ideal Dispenser Company uses Electro Paintlok for cabinets to provide an excellent paint-adhering surface even after severe forming operations. According to Ideal, "hot room" tests have proved it the most economical base material under temperature and humidity variations found in any part of the world. Sheets are shipped from the mill in prime condition for painting. For some products, only the final finish need be applied for full protection and attractive appearance. Send coupon for full details.

REPUBLIC STEEL CORPORATION

DEPT. C-4788

3216 EAST 45TH STREET • CLEVELAND 27, OHIO

☐ Have a Stainless Metallurgist call.

Send more information on:

☐ ENDURO Stainless Steel ☐ Electro Paintlok

☐ ELECTRUNITE Steel Tubing

Name _____ Title _____

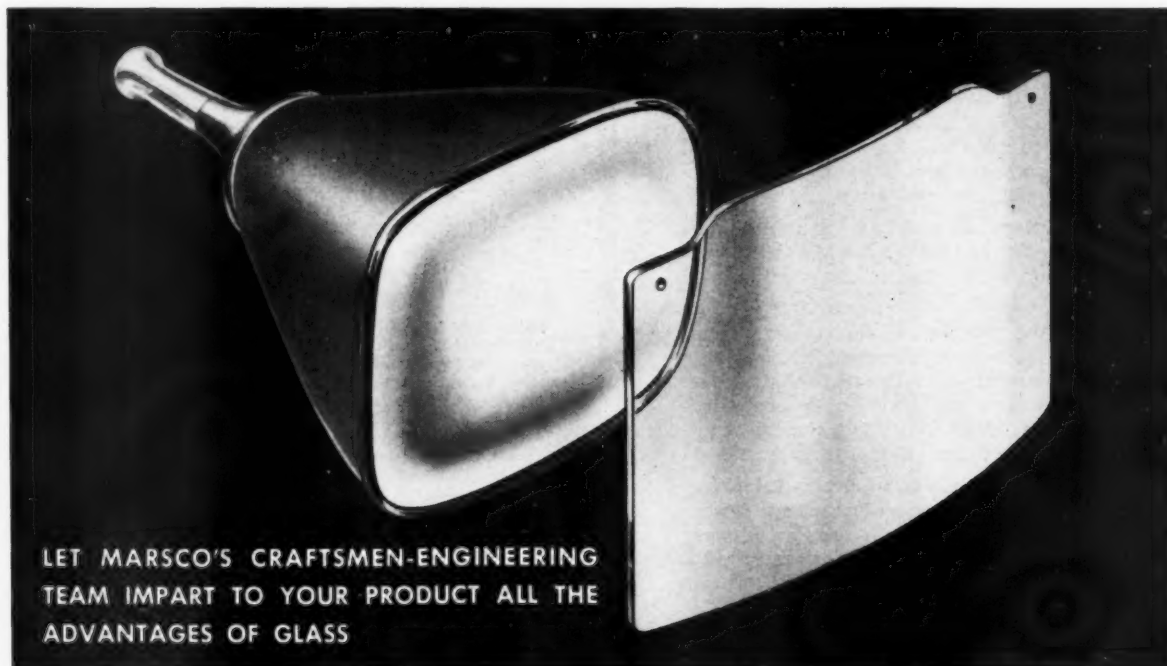
Company _____

Address _____

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MARSCO

for the Finest in
PRECISION GLASS PARTS!



Join the television and appliance manufacturers who are now enjoying extra sales from the appeal and prestige contributed thru the luster of glass. Glass will enhance the beauty and broaden the acceptance of your product. It can be hardened, heat-treated or tempered to survive your consumer usage unscathed.

Here are some of the applications for Marsco heat-treated, tempered and hardened glass parts:

- CLOCK & TIMER CRYSTALS •OVEN DOORS •RADAR EQUIPMENT •AIRCRAFT ACCESSORIES
- PHOTOGRAPHIC EQUIPMENT •LIGHT LENSES •DIALS & NAME PLATES •TELEVISION EQUIPMENT
- INSTRUMENTS •MEDICAL EQUIPMENT •BACKGUARD GLASS FOR RANGES •LAMP GLASS •SHELVING

Special Shapes for: Instruments, Gauges, Household and Industrial Appliances.



Bent Glass



Convex Glass



Heat-treated Glass

MARSCO MFG. CO., 2909 S. HALSTED ST., CHICAGO 8, ILL.

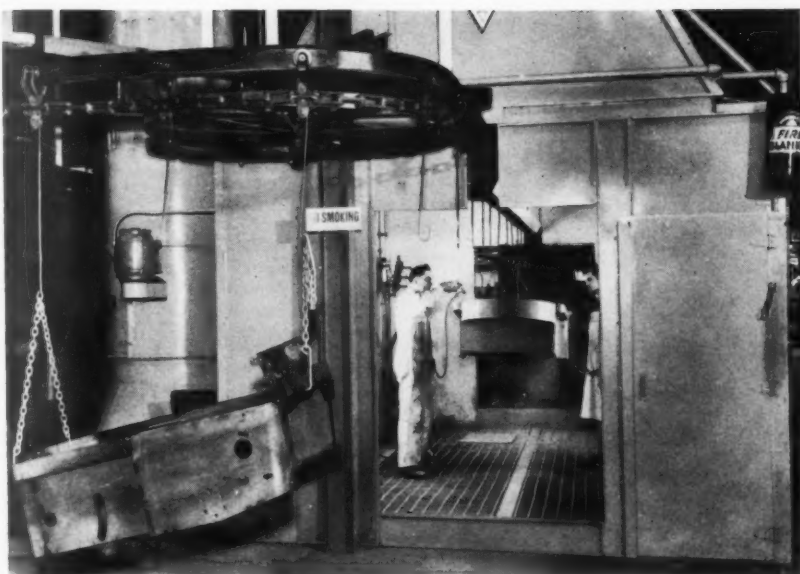
The G. H. Tennant Company used to have trouble painting production quantities of 1000 different parts for their power sweepers, floor machines, scarifiers, roof scrapers, and concrete routers.

A new finishing system, specially engineered for Tennant's new Minneapolis plant, speeds the washing and drying of all parts (they weigh from ounces to 800 pounds) and speeds the spraying and baking of the prime coat and the bright orange or cream finish coat.

The continuous-conveyor system enables Tennant to do in 24 man-hours what used to take 80 man-hours, and assures a superior finish. The system includes a 3-stage washer, dry-off oven, 2-man spray booth, and 74-ft. baking oven.

Metal parts, from basket loads of small units to large frames measuring up to 4½ by 5 to 6 ft., first enter the 44-ft. washer where an acid pressure spray of a phosphate solution converts the surface to an iron-phosphate coating. This is followed by a cold water rinse, then a hot rinse that hardens the rust-resistant and corrosion-resistant phosphate salts.

The parts then pass immediately into the 34-ft. dry-off oven which is main-



Conveyor speed of 8 fpm gives sprayers time to handle basket loads of small parts or large frames. After prime coat is sprayed and baked on, parts go through system again (washer being temporarily shut off) for spraying and baking of finish coat.

tained at a 350 to 400° F. temperature, depending upon the size of the parts.

The parts are then carried to the down draft filter spray booth where two men apply the prime coat or either of the orange or cream finish coats.

Speed of the 500-ft. conveyor is approximately 8 ft. per minute, giving the sprayers sufficient time for any of the 1000 different parts.

After the prime coat is sprayed and baked on, the parts go through the system again (washer is temporarily shut off) for spraying and baking of the finish coat. The 74-ft. bake oven is installed on the roof of the one-story plant to save valuable floor space. Just-sprayed parts travel up and into the oven through its underside opening. Baking lasts eight minutes at 330° F., in two passes.

The system will handle 100 to 150 loads at a time, with a complete cycle for one coat requiring 60 minutes.

Finishing time cut from eighty man-hours to twenty-four

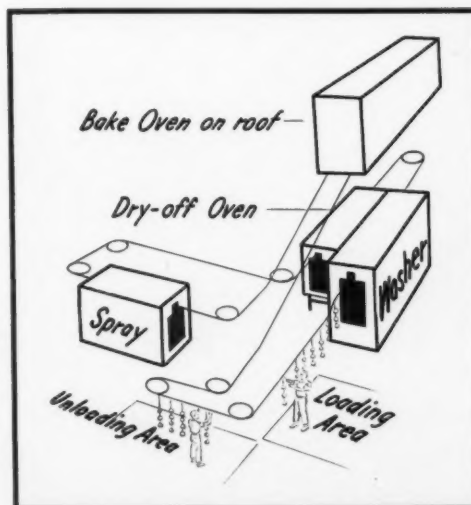
up-to-date finishing and continuous-conveyor system ends production bottleneck of 1,000 different parts

ILLUSTRATIONS COURTESY DESPATCH OVEN COMPANY



Seventy-four parts, each twice sprayed and baked, are in this new power floor sweeper for industrial use.

Flow diagram shows perspective of metal processing and paint finishing system. Conveyor is 500 ft. long, and 74-ft. bake oven is built on plant's roof to save floor space. Baking lasts eight minutes at 330° F.



Central control production line for porcelain enameling AllianceWall

a versatile product that can be shipped in coils or laminated to customer's order on any rigid board — process features maximum control on a continuous production line

by *John Sincere* • TECHNICAL EDITOR



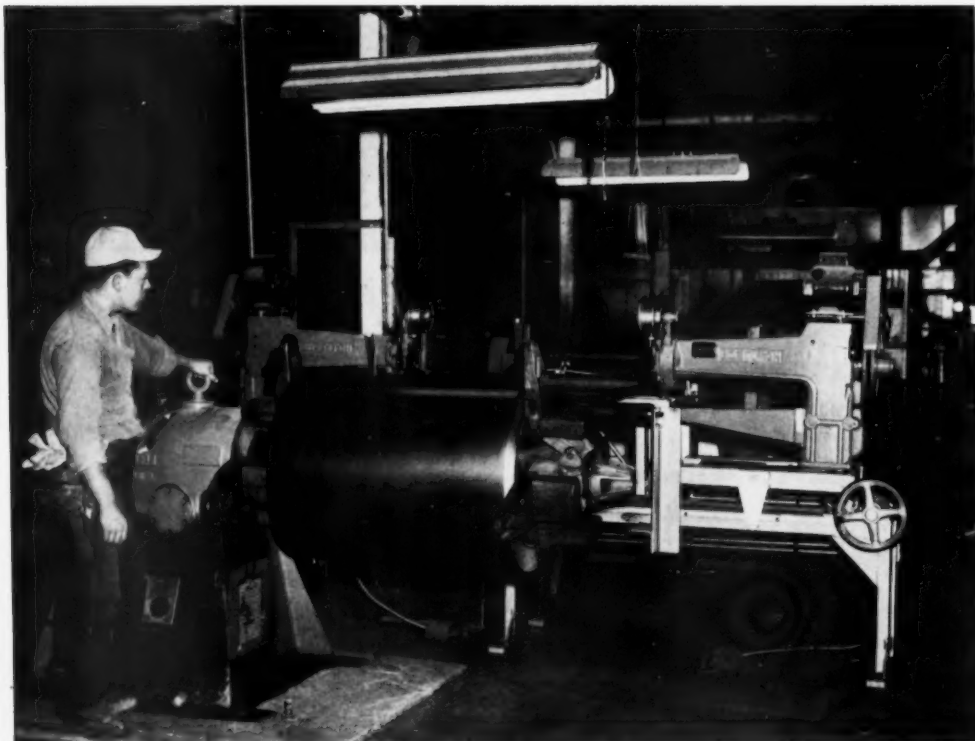
The metal curtain wall segment of the building construction industry has grown faster than any other in the past few years, and everything points to continuing increases. This growth is in spite of the fact that a great deal of development has been necessary for such a comparatively-new industry. Great engineering advances are being made in the curtain wall industry through the cooperation of architects, manufacturers, and industry organizations. Another contributing factor in this growth is

the outstanding work the manufacturers themselves have done to improve their product.

Several manufacturers have diversified into the curtain wall field after recognizing the potential in this promising industry. One such company is AllianceWare, Inc., Alliance, Ohio. Their recently-formed division, AllianceWall, manufactures porcelain enamel on steel coils in a completely-controllable continuous process. Raw enameling steel is fed into one end of the production line and coiled on the other end ready to be shipped, or cut to size for laminating to a variety of core materials.

The process AllianceWall uses results in two advantages over other methods of porcelain enamel panel manufacture. One is the fact that a complete coil of finished porcelain enamel on steel can be shipped to a customer that has laminating facilities in his own plant. The other advantage is the saving in manpower on the manufacturing line. Processing from raw steel coil to completely finished coil is done on a continuous production line.

Although there is nothing new to the idea of porcelain enameling continuously on a coil of steel, AllianceWall has perfected the process to such a



EXCLUSIVE MPM PHOTOS

The start of the production of AllianceWall begins here. The steel coil is threaded through the entire production line with a heat-resistant stainless steel strip. A stapling machine (right center) connects succeeding coils for continuous processing.



The speed of the entire process is controlled from this master panel by only one man. As can be seen, continuous recorded temperature control is kept on the furnaces. The height of the catenaries, so vital to the control of firing, is controlled here.



At left, the coil emerges from the nickel tank and enters the water rinse tank. At right, the coil is moving between upper and lower banks of infra-red lamps to dry the strip prior to entry into the ground coat spray booth.

point where close control can be exercised at all times to assure absolute uniformity of quality.

When the AllianceWall division of the company was set up, it was decided that every phase of manufacturing and selling would be studied to take advantage of the best available knowledge for production and distribution. Experts in the highly-specialized field of curtain wall building construction were retained to guide the enterprise.

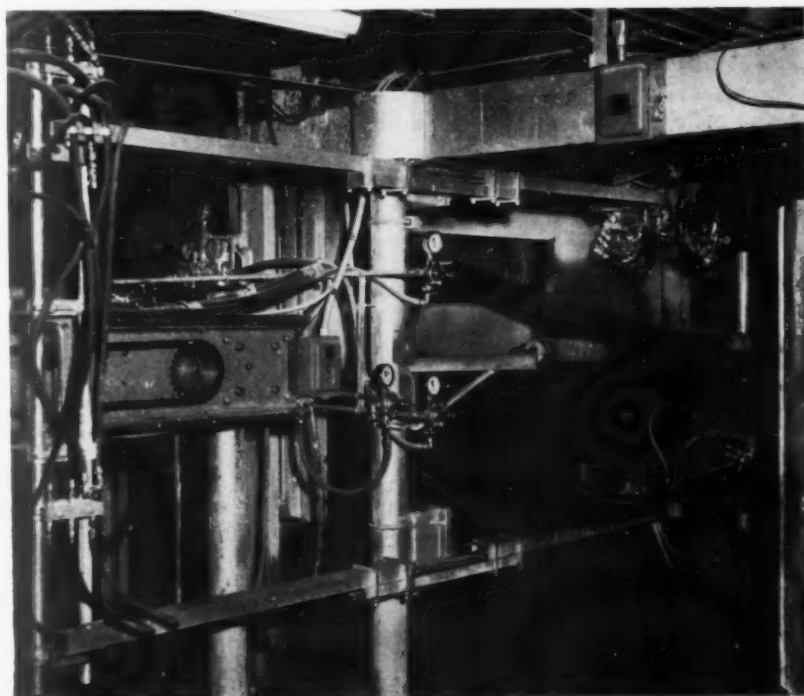
What AllianceWall is

AllianceWall is a conventional porcelain enamel ground and cover coat on a steel base. The steel ranges in thickness from .010 to .022 of an inch. Ground coat is applied to both sides of the steel while the cover is applied to one side only. Application of ground coat to both sides of the steel is necessary, primarily to prevent warpage, and also to protect the reverse side of the sheet throughout its life time of use.

Wide color range available

A full range of colors, 35 in all, are produced in gloss or semi-matte finishes, including eight stipple finishes. In addition, there are many colors available on special order. A permanent record

A view of the spray booth used for application of the ground coat. It is completely automatic, and both sides of the strip are sprayed at the same time.



...do you have a **SPRAY WASHER PROBLEM?**

IF SO, SEND FOR OUR
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"The Recommended Operating, Cleaning and
Maintenance Procedure for Pressure Washers."



or better yet ...

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in one operation?

Try a

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or die cast?

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- Do you want chemically clean steel?

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- Do you want a superior phosphated surface
for better paint adhesion and corrosion resistance?

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of colors supplied on every order or project is maintained to assure positive matching for any future requirements of customers.

A special steel is used that is basically enameling iron except that it is electrolytically cleaned prior to delivery from the mill. Widths range from 24 to 48 inches.

The entire operation is in one building adjacent to the parent company's plant. It houses the porcelain enameling line, the control laboratory, and the laminating line, and warehouse.

Automatic nickel application

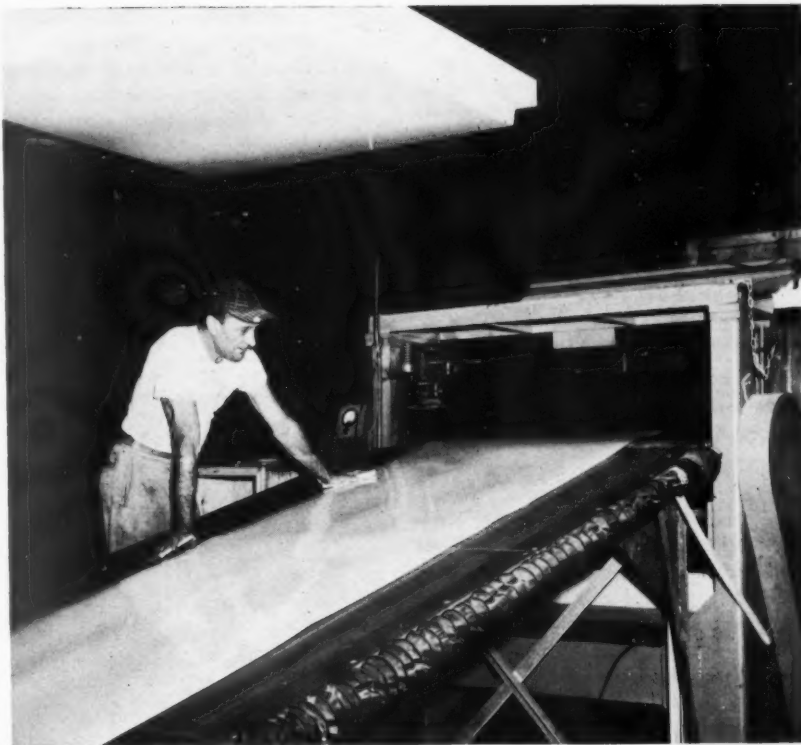
To begin production, a heat resistant pilot steel strip is stapled to the end of a 4,000-foot length of the raw steel coil stock. This steel strip would not be required if production were continuous on a 24 hour per day basis. At the end of the production run the pilot strip is stapled to the end of the raw porcelain enameling stock and allowed to continue through the complete line to the point of final inspection. The 200-foot pilot strip is retained in the production line as a "dummy" in order to thread the raw stock through the process line at the start of production.

Since no pickling is required, the first stage of the process is nickel dip. This is done in a specially-made tank that employs steel rollers to immerse the strip in the nickel solution. A continuous filter and bi-hourly check are employed to keep the solution at optimum strength. Steel roller idlers serve to keep the strip beneath the surface of the nickel solution. Following the nickel, the strip is passed through a water rinse tank and then through a bank of infra-red drying lamps to be dried.

Spray line set up for quick color changes

Immediately after being dried, the strip enters the ground coat spray booth. Here the ground coat is automatically applied with a single reciprocating spray arm that is equipped with separate units at the top and bottom of the strip. The cover coat spray booth is arranged the same as the ground coat booth, except that there is only one bank of spray guns located above the strip. Additional spray guns are mounted on the cover coat spray arms to provide for the application of stipple effects when required.

Color change is no problem, even when a continuous strip is being run. All that is required is to change the enamel slip pressure tanks and adjust



Final inspection is made under a special "daylight" light source that enables close color matching. The third pinch roll is at right center. Note the thickness gauge to the left of the operator.

the spray guns according to the new enamel and, if necessary, to cut in one or two guns for the application of a stipple enamel. Only a short length of steel is lost in the changeover.

Close control of fineness

Both the cover and ground coat porcelain enamels used in the production of AllianceWall are prepared in conventional fashion except for milling. The difference in the milling process is in particle size control. In order to obtain precise color matching, which is abso-

lutely essential, final milled particle size is held within closer limits than is usual.

Pinch rolls control process

The wet ground coat is dried by waste heat from the ground coat furnace. The cover coat is dried in exactly the same manner with waste heat from the cover coat furnace.

Both the ground and cover coat furnaces are virtually identical. They are essentially box furnaces with narrow

to Page 80 →

Here, the finished porcelain enameled strip is coiled, ready for shipment to customers equipped to handle coiled stock, or for delivery to the laminating line at AllianceWall.

MPM PHOTOS



FORECAST SUPPLEMENT

→ from Page 24

the same time a year ago, according to a year-end statement by Alex Lewyt, president of Lewyt Corporation.

In a business survey among many of its dealers and distributors in the United States, the Lewyt Corporation found that 33.2 percent expect their volume to increase 15 percent during the first six months of the year. Others look for a volume increase ranging from 5 percent to 30 percent.

ARCHITECTURAL PORCELAIN

Ingram-Richardson Manufacturing Company, maker of porcelain enameled architectural panels, anticipates expanding markets in both near term and long term outlooks, according to J. Fred Ingram, president.

"Despite general reports of softness in construction volume, three factors should contribute to steady growth in porcelain enamel's share of the market," Mr. Ingram said.

The factors Mr. Ingram cited are: (1) continuing demand by architects and owners for more color in buildings; (2) further expansion of curtain wall construction, aided in some areas by modifications of old fashioned building codes; (3) increasing applications for porcelain enameled aluminum.

Mr. Ingram stated that his company anticipates a continuing increase in volume during 1958, following a one-third increase last year. Sales in two of the specialty items, porcelain enameled chalkboards for schools and pasting plates for the leather industry, should continue to gain. Porcelain enameled sign sales and production are expected to be about the same as in 1957. Since 1955 Ingram-Richardson's production of curtain wall and architectural veneer-type panels has tripled.

ALUMINUM

Aluminum Company of America foresees an increase in aluminum consumption over 1957 totals during the year ahead, with the present abundance of metal contributing to broadened usage in both new and existing applications.

Adequate supplies of aluminum now are assured by the greatest primary and fabricating capacity in the industry's history, with Alcoa's own installed capacity to produce basic metal rated at 792,500 tons annually at the close of 1957, or 42 per cent of the U. S. total.

During 1958 Alcoa expects to add 20,000 tons at its Point Comfort (Tex.)

smelter, and to begin production at its new Warrick (Ind.) works, where an ultimate capacity of 150,000 tons yearly is planned. Alcoa's output of primary aluminum amounted to approximately 710,000 tons during the past year.

Avenues to further applications of aluminum also were opened by two new high temperature soldering materials which promise to reduce joining costs, a new alloy for welded structures operating at elevated temperatures, two new alloys which reduce the cost of porcelain

enameling, impact extrusions clad with high purity aluminum, and foamed-plastic insulated panels for the building, refrigeration, and other industries.

ARI FORECAST

from Page 21

6. Revelation that jet aircraft, radar, electronic computers, rockets and other missiles, and many other items utilize refrigeration or air-conditioning, or

The advertisement features a large image of a Binks Model 19J spray gun. Below the main image, two diagrams labeled A and B illustrate the internal fluid passage of different spray guns. Diagram A shows a complex, multi-bore passage for an ordinary spray gun, while Diagram B shows a simpler, single-bore passage for the Binks Model 19J. Two graduated cylinders, labeled A and B, are shown next to the diagrams, representing the volume of paint required for cleaning. Cylinder A is filled with a dark liquid, while cylinder B is mostly empty.

65% savings in paint

A To clean out a conventional spray gun after transferring to another paint line 7 to 10 ounces of paint must be "bled" to prevent a color inter-mix.

B Only 2 to 4 ounces "bleed-out" paint are required to clean out the Binks Model 19J spray gun—a 65% material savings.

A Fluid passage ordinary spray gun

B Fluid passage—Binks Model 19J

both, in their manufacture, operation and control.

7. Increased interest in the manufacture of heat pumps. These are expected to become a larger factor in the production of many companies in 1958 and ensuing years. Many manufacturers are applying the "reverse cycle" heat pump principle to room-size units, and many others are building large industrial heat pumps which will cool in summer and heat in winter without the combustion of fuel on the premises.

8. Gas-fired air-conditioning made new gains, leading some authorities to predict that it will become an increasing factor in the industry in the coming years, thus opening up new fields. The American Gas Association has underway a large-scale research and development program, coupled with promotional efforts to sell gas air-conditioning. The fuel oil industry, too, is seeking to develop equipment using oil to generate air-conditioning.

Following these 1957 developments,

the future of the industry seems even rosier than at the end of 1956, when it was possible to report sales increases but not so much in the way of developments pointing to an expanding future.

We of the industry feel that the strides made in 1957, not only by our own member companies but by those industries and individuals who use our products, point to an era of growth that will be almost without parallel in the history of American business. The potential is there; the industry is ready technique-wise, and the users are rapidly converting what we used to think of as "public acceptance" into "public demand." Within the next decade the non-air-conditioned home will become as obsolete as is the home today without a central heating system; workers in virtually all fields will do their daily stints in air-conditioned surroundings, and will travel to and from work in air-conditioned vehicles. Mechanical refrigeration will become increasingly necessary for the processing and distribution of our food, as civilization becomes more complex and new types of foods are developed.

Our industry has had an outstanding decade since World War II; the next ten years will see even greater growth and impact on our life and economy.

New Binks spray gun for circulating systems Cuts clean-out costs 65% when changing colors

Plants using multi-color paint circulating systems frequently shift spray guns from one color line to another. To clean the old color out of the spray gun the new color must be run through the gun, (and quick detachable hose connection) until there is no danger of inter-mix. Paint lost through this "bleeding" operation runs between 7 and 10 fluid ounces.

New spray gun cuts "bleed" losses almost 65%. Binks Model 19J spray gun, when used with the same quick detachable hose connection, slashes "bleed-off" losses. Only 2 to 4 fluid ounces must be passed through the passages to make certain there is no inter-mix to cause a finish reject.

Unique design features. Binks Model 19J is an efficient, dependable production spray gun in every respect. Its paint saving characteristics

are achieved through two unique internal design features. Design feature number one greatly reduces the amount of paint contained between material inlet and nozzle orifice over that contained in conventional spray guns. Feature number two eliminates all "pockets" in the gun head which can trap paint. This also contributes to faster clean-out with less material waste.

Automatic model available. Binks Model 21J is an automatic spray gun, triggered by air pressure. On automatic painting machines it provides the same paint saving economies as Model 19J.

All the facts in Bulletin RFG. Get the complete story on these two new Binks spray guns. Ask your Binks industrial distributor for a copy or write direct to the address below.



Ask about our spray painting school
Open to all...NO TUITION...covers all phases.

7715

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EVERYTHING FOR

SPRAY PAINTING



SPRAY GUNS



AIR COMPRESSORS



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COMING FEATURES

DESIGN

Design for a bathroom scale

The testing and application of solenoids for appliances

FABRICATION

How to fabricate stainless steels

FINISHING

Correlation of laboratory & service tests by John S. Wicks, General Electric

Impossible yesterday — in production tomorrow by E. A. Zahn, industrial finishes consultant

PRODUCTION

Infra-red heating does many jobs in the metal products field

MATERIALS HANDLING

Better materials handling improves product efficiency

New

Supplies and Equipment

SEQUENCE TIMER FOR ELECTRIC CLOTHES DRYERS



A sequence timer, combining timer switch and timer motor in one protected unit, has just been introduced. It is designed for compactness, and gives flexibility in circuits, terminals, and sequence programming for electrical dryer operation, according to the builder.

The motor unit is a self-contained 2.5 watt, hysteresis-type, synchronous motor with a speed of 1,800 rpm at 60 cycles. Nylon gears and pinions require no lubrication, it is said, and the motor may be mounted in any position. It is available in clockwise or counter-clockwise rotation.

The timer switch unit operates in ambient temperature from 35° F. to 150° F. The dial shaft may be turned in either direction to reset, and a two-way clutch permits smooth manual reset without jerks.

For more information, contact Dept. MPM, Ranco, Inc., Columbus, Ohio.

SPEED CLIP COMPRESSION RINGS ELIMINATE TAPPING

Four Speed Clip compression rings replace 12 separate parts, and eliminate four tapping operations per unit, in the installation of a clock and speaker combination into a plastic radio cabinet, it is claimed by the manufacturer.

Formerly, a screw, washer, and special rubber grommet were necessary at each corner to retain the unit and allow correct degree of pliability. Assembly is said to be reduced 50 per cent. For information, contact Dept. MPM, Tinnerman Products, Inc., Cleveland, Ohio.

NEW FAMILY OF ELECTRIC CONTROL UNITS

A "family" of electric control units, packaged in a sectionalized plug-in design and having interchangeable output sections, has been developed.

The units, known as Electr-O-Line, Electr-O-Pulse and Electr-O-Volt, incorporate replaceable printed circuits, continuously adjustable proportioning reset and rate action, and silicon diodes for power supply. They are used principally in the metals producing and processing industries in conjunction with potentiometers to control furnace temperatures.

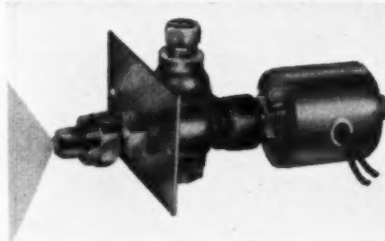
Each of the new electric control units consist of three sections mounted in a die cast aluminum chassis with adjustments made from a front panel. Amplifier and power supply sections are the same for each unit. The control output section differs in each unit, but conversion from one controller to another is accomplished by plug-in of the desired output section.

For further information, contact Dept. MPM, Minneapolis-Honeywell Regulator Co., Minneapolis, Minn.

HUMIDIFIER FOR GAS FURNACES

Now available is a new humidifier for gas furnaces having the capacity to maintain comfortable humidity during the winter months for an average 6 or 7-room dwelling. This easily-installed unit is of the atomizing type, and operates only when the furnace blower is in operation. The patented whirling pneumatic atomizing nozzle introduces an extremely-fine water mist into the heating system, and is evenly distributed.

The design and brass construction of the LEWBILL HUMIDIFIER tends to assure trouble-free service. It operates on 110v AC, and delivers a minimum 1/10 gallon of water per hour of continuous operation. For more information, write to Dept. MPM, Lewbill Industries, Inc., 2002 Clark Bldg., Pittsburgh 22, Pa.

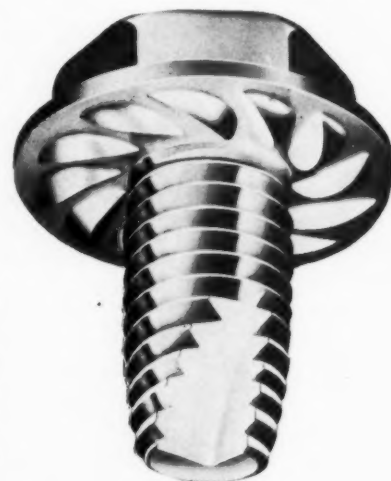


"NIBSCREW" ELIMINATES SCREW STRIPPING

A thread-cutting screw has been introduced that will provide twice the stripping torque of a comparable sheet metal screw or thread-cutting screw, it is claimed by the manufacturer.

Called "Nibscrew", it is recommended for applications that have little screw-thread engagement. "Nibs" or protrusions under the head act as the brake, so that the head rather than the threads take up the tightening torque. This permits a broader range of driver settings and reduced rework and rejections. Sizes available are #4 through 1/4" with Pan, Truss, and Hexagon Washer heads.

For additional information, write Dept. MPM, Shakeproof, Div. of Illinois Tool Works, St. Charles Rd., Elgin, Ill.



PAINT SPRAY EQUIPMENT FOR INDUSTRIAL USE

A line of air-operated paint spray equipment for industrial use has been announced. The equipment can be used to spray lacquers, enamels, synthetics, die drawing compound, etc.

The line includes a new 4:1 ratio divorced-type paint spraying unit in 50-lb. capacity portable units, and 400-lb. stationary pumps. They are ready to connect to the air line for immediate use, with no other accessories needed.

For further information, write Dept. MPM, Aro Equipment Corp., Bryan, Ohio.

More New Supplies on Page 66

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on a heat or corrosion resistant alloy casting



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In Canada - Fahralloy Canada, Ltd., Orillia, Ontario



INTERVAL TIMER FOR APPLIANCE AND COMMERCIAL MARKETS

An interval timer for OEM applications, the Series 430, is now available in production run quantities, according to an announcement.

The new 430 Series timer is best suited for ranges below 6 hours. Other timers are available for small runs and higher time ranges.

The 430 Series interval timers are especially built and priced to meet the appliance and commercial markets, according to the manufacturer. They can be supplied with a variety of circuit ar-

rangements, an audible signal, or a hold feature. The 430 Series is the natural answer, states the maker, for laundry equipment, infra red ovens, battery chargers, and limitless other applications.

The timers employ a beryllium copper switch mechanism with pure silver contacts to obtain contact pressure and load capacity. A single blade design and contacts that are an integral part of the "SlipOn" terminals give the minimum of mechanical connections. For further information, contact Dept. MPM, Paragon Electric Co., Two Rivers, Wis.

HOT-MELT ADHESIVE SIMPLIFIES ASSEMBLY

An adhesive which is particularly suitable for holding parts together during assembly has been developed.

Designated as Ray-BOND R-84001, it is a hot-melt adhesive which provides instant grab when applied to glass, etched Teflon, Mylar, polystyrene, polyethylene, and almost any other material. This property simplifies assembly line operations by holding parts in place until they can be permanently fastened. It is particularly helpful in assembling small parts.

The adhesive may also be used as a permanent binder provided temperatures do not exceed 150 degrees Fahrenheit. A one-square inch lap joint made from strips of Mylar will hold a dead load of 50 pounds at 73 deg. F., and a load of six pounds at 150 deg. F.

Composed entirely of solids, the adhesive is supplied in a semi-brittle state. It is liquified by heating to 250 deg. F. and applied in the fluid state to one of the parts to be assembled. The other part is immediately pressed into contact and the two held together. For further information, contact Dept. MPM, Adhesives Dept. Raybestos-Manhattan, Inc., Bridgeport 2, Conn.

MACHINE MEASURES STRIP WITH LOW-INTENSITY X-RAY

Low-intensity X-rays in split-second pulses scan film and foil speeding by at 100 feet per second, and measure strips .0002 of an inch thick with accuracy of millionths of an inch in a new type gage.



By using pulses instead of continuous radiation, the unit, known as Measuray®, pinpoints changes of thickness even at extremely high speeds of strip production. At 600 pulses per second, the new X-ray gage provides an individual thickness reading every third of an inch on foil fed through at 1,000 feet per minute.

For further information, contact Dept. MPM, The Sheffield Corp., subsidiary of Bendix Aviation Corp., Dayton, Ohio.

DESIGN SALES

Trim parts play a very important part in making your final sale to the ultimate consumer. Most important are; Appearance and Cost!

That's why all of us here at Light Metals Corporation are trained and experienced in designing and producing the complete part with our customer's Sales in mind. To show you what we mean, we are illustrating a part that was produced strictly from a hard headed viewpoint . . . to help gain SALES.

It's an air conditioner trim frame which is not only Permanently Beautiful, but also doubles as a functional unit thereby considerably reducing manufacturing costs. The fabric screen used to hide the mechanism from view and the plastic air vent are both firmly held in place by this ingeniously designed extruded aluminum functional trim part. To effect further economies it was engineered to form an integral part of the finished product via a very easy and quick assembly method.

It's not necessary for YOU to struggle with these problems. Give them to us to work out. We're specialists in this field. Whether you manufacture refrigerators, ranges, air conditioners, automobiles or any other product, we can help you from the very inception of the problem. Our service includes creative designing, engineering, building the dies, extruding, all fabricating operations, anodizing, yes sir, the complete job done efficiently in our one plant.

YOU MAKE ONE BUY . . . ONE FOLLOW-UP

WE INVITE ALL INQUIRIES . . . because we are experts in working out your problems and making recommendations. All we require to work with is a drawing or a rough sketch along with your specifications.

Routing: Extrude aluminum, notch corners, pierce holes, part formed, restrike corners for sharpness, exposed face is scratch brushed for desired effect, clear anodized.

CROSS SECTION

Write, wire, or phone today!

LIGHT METALS

CORPORATION

1223 Monroe N.W. Grand Rapids 5, Michigan

EXTRUDED ALUMINUM - COMPLETE FABRICATION FACILITIES - ANODIZING

STRIP COATING PROTECTS BRIGHT METAL SURFACES

A new type strip coating called Strip-Kote is a high solids, milky colored, plastic emulsion which, when dry, gives a transparent, tough film for protecting smooth and wrinkled metal finishes, stainless steel, and polished aluminum surfaces from being marred or scratched during processing, shipment, or storage.

Strip-Kote is applied by brush or spray gun. The film becomes transparent as it dries. The dried film is said to be permanently flexible and easily stripped to preserve a factory-fresh appearance on the protected surface.

For further information, contact Dept. MPM, Chemical Consulting Service, 3711 S. Clement Ave., Milwaukee 7, Wis.

PORTABLE POWER, SPEED, AND LIGHT CONTROL

For use in shop, laboratory, industrial, and commercial applications, the new POWERSTAT type 2PF10 is said to smoothly, steplessly control the power, speed, or light output of most electrical apparatus having current requirements up to 1.0 ampere. Only a few of its uses are to reduce power tool speed for delicate operations; to control in-

candescent lamp intensity up to 150 watts; to use as a small motor control for laboratory mixers and centrifuges; and to operate small heaters, soldering irons, and test equipment.

A small, compact variable autotransformer in a cast aluminum housing, the POWERSTAT provides control by delivering to the apparatus an input voltage from zero to 10 per cent above line voltage. The unit is only 3½ inches high and 3½ inches in diameter. Working surfaces can be kept free of unnecessary wiring because of the 6-foot cord-

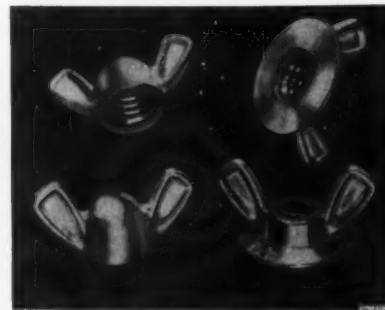


plug which provides two receptacles and a fuse housed in the plug end of the cord. Has an accessible "on-off" switch and well-defined dial graduations. Delivers an 0-132 volt, 1.0 ampere, 132 VA output from a 120 volt, 60 cycle, single phase a-c input.

For further information, contact Dept. MPM, The Superior Electric Co., Bristol, Conn.

ZINC ALLOY WING NUTS

Two new types of wing nuts, die-cast of zinc alloy, are available. One is a capped wing nut, and the other a washer-base wing nut. According to the manufacturer, the capped wing nut, having a closed threaded section like a regular cap nut, offers a decorative



means of finishing off bolt ends, at the same time sealing and protecting exposed threads. The one-piece washer-base wing nut replaces a regular wing nut and flat washer. For further information, contact Dept. MPM, Gries Reproducer Corp., 400 Beachwood Ave., New Rochelle, N. Y.

every **Hudee** frame carries this invisible tag...

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Every buyer of Hudee frames quickly realizes he can put his complete confidence in every frame he buys.

He knows that the experience of manufacturing over 5 million Hudees has established a tradition of dependability.

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... for a standard line of motors
adaptable to hundreds
of applications



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2-pole, shaded pole
AC Induction Type



MODEL B
4-pole, 4-coil
shaded pole AC
Induction Type



MODEL D
4-pole, 4-coil
shaded pole AC
Induction Type



MODEL E
4-pole, shaded pole
AC Induction Type

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Fractional H. P. Motors

1/40 H. P. to 1/1100 H. P.

General Industries' standard line of motors is adaptable, with slight variations, to literally thousands of applications. This means that your motor requirements can most likely be met without additional time-consuming engineering.

If you are currently using fractional horsepower motors, or are planning a product that calls for their use, phone or write General Industries. We'll gladly make recommendations — without obligation.

Write for complete specifications and
quantity price quotations **TODAY!**



THE GENERAL INDUSTRIES CO.

DEPT. GF • ELYRIA, OHIO

How to fabricate

→ from Page 35

Stretch and compression forming

Straight channels, hat sections, and similar shapes are difficult to contour by usual methods. Reason for this is that their original section was designed to resist the very deflection the contouring imposes.

Stretch and compression forming machines are most helpful here. In stretch forming, the metal is gripped at both ends, subjected to high tension and stretched over a die or shape. As in drawing practice, certain areas are considerably elongated to produce wrinkle-free contours. There is little spring-back.

In compression forming the stainless steel is forced against the die by rollers under heavy pressure. This causes elongation and flowing of the metal to fit itself to the shape of the die.

Roll forming

With slight modifications, roll forming equipment used for mild steel will form stainless steel strip into channels, moldings, and similar parts. In some cases roll design, guides, and lubricant must be changed because stainless steel is harder, has greater strength, and responds differently than softer metals.

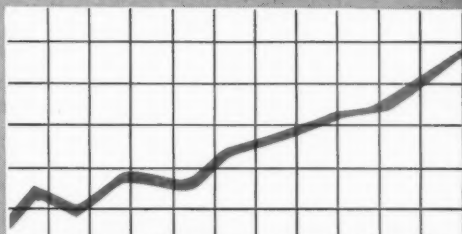
Power roll equipment can be used to form stainless strip in the annealed condition. However, the draw bench of conventional design with roller dies and heavy chain has been recommended for the high strength types of stainless steel. Stands of driven rolls require heavy pressures, whereas idler forming rolls permit slippage and natural flow of metal to the desired shape. Fixed dies may be used for the final straightening operation.

Case-hardened steel rolls are generally used to form stainless steel. These rolls are often faced with a bronze overlay to reduce "pick-up." Rolls are machined undersize to allow for applying 1/8" minimum thickness of bronze.

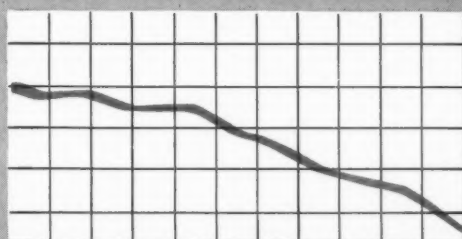
Rolls should always be kept highly polished to permit slippage and prevent dragging the metal. Oiled emery cloth is used for polishing.

Roller-type guides will keep the edges soft and ductile by reducing friction and the tendency to work-harden.

A somewhat thinner lubricant than preferred for drawing operations is used in roll forming. It is applied to the stainless strip by passing it between wipers before the strip enters the first set of rolls. Another method is to pipe the lubricant to the rolls and let it flow over them.



*Their Enameling
REJECT chart
looked like this*



***NOW**
it looks
like this*



ING-RICH *trouble shooters* solved their problem

Ing-Rich Frits are the result of laboratory research and development by some of the country's leading ceramic engineers working hand in hand, day-in and day-out with practical enameling technicians in our large job enameling plant.

Ing-Rich Frits are "plant tested." Ing-Rich ceramic engineers are "plant tested."

Their trouble-shooting "Know How" has enabled many Ing-Rich Frit Customers to considerably reduce their rejects, just as it did for the customer whose rejects charts are shown above.

When you think it through, we are sure you'll agree that it's mighty hard to beat that rare combination of the scientific approach **PLUS** practical "KNOW HOW" . . . and . . . that's just what you get when you are an Ing-Rich Frit customer.

Ing-Rich "plant tested" Trouble Shooters are available to you without obligation.



INGRAM-RICHARDSON, INC.

OFFICES, LABORATORY AND PLANT
FRANKFORT, INDIANA



Industrial Literature

CUT ELECTROPLATING COSTS

Booklet is available enumerating nine ways to cut electroplating costs. Electro-cleaners are available which are said to cut electroplating costs. These electro-cleaners are fortified with high wetting and emulsifying powers to do an effective job in deep recesses and places of normally low current density on intricately shaped parts. For free copy of this booklet, write Dept. MPM, Metal Industries Division, The Diversy Corp., 1820 Roscoe St., Chicago 15, Ill.

MASKING TAPE BULLETIN

A revised brochure describing technical properties of masking tapes and various industrial applications for them has been made available.

The new three-page fold-out brochure lists 13 "Scotch" brand masking tapes, including two new types, together with such properties as tensile strength, adhesion and percentage of stretch.

It also lists the uses for which each tape is best suited and, in eight picture sections, illustrates applications ranging from general masking to high heat masking to plant maintenance.

For further information, write Dept. MPM, Minnesota Mining and Manufacturing Co., 900 Bush St., St. Paul 6, Minn.

ROLLED-IN SURFACE

PATTERNED STEEL

A versatile product, rolled-in surface patterned steel, can be used for many small metal products that require somewhat decorative textured surfaces. Business machines, as well as a wide variety of other office equipment, can be made using this surface patterned steel. For more information write Dept. MPM for Sharonart Bulletin. Sharon Steel Corporation, Sharon, Pennsylvania.

APPLICATIONS FOR

STAINLESS STEEL

A wide variety of products made of stainless steel are described in new available information. Complete information on stainless steel for many products can be obtained from Dept. C-3619R, Republic Steel Corporation, 3216 E. 45th Street, Cleveland 27, Ohio.

ELECTRO-STATIC SPRAY PAINTING INFORMATION

In one case the manufacturer claims that a single reciprocating disc unit for electro-static spray painting automatically handles the work which formerly required eight hand sprayers. Another claim is that even with increased production, the company mentioned is using 50% less paint. Also, it is said that the quality was improved with maximum uniformity in all parts. Write Dept. MPM for No. 2 Process Brochure, Ransburg Electro-Coating Corporation, Indianapolis 7, Indiana.

EXPANDED METAL BULLETIN



Often called the material of a thousand uses, new expanded metal bulletin illustrates many of them in plant construction and maintenance, manufactured articles, ornamental and display racks, etc., along with giving sizes, air flow tables, and load capacities of the grating type. Four new patterns, supplementing the standard diamond shaped opening, are shown for the first time. Expanded metal is supplied in carbon steel, stainless steel, and aluminum, in standard and flattened mesh, the bulletin points out. For free copy of this handy reference and buying guide, ask for technical bulletin 20-4 from Dept. MPM, Joseph T. Ryerson & Son, Inc., Box 8000-A, Chicago 80, Ill.

CERAMIC GOLD ON GLASS

It is said to be possible to apply ceramic gold designs on glass for panels, dials, name-plates, etched in glass that are also said to be easy to clean. Write Dept. MPM, Croname Glass Studios, 1755 Grace Street, Chicago 13, Illinois.

BATTERIES — FROM THEORY TO MAINTENANCE BULLETIN

The complete scope of motive-power battery maintenance and repair is described in a revised edition of the "Battery Users Manual", just issued. Encompassing every phase of battery maintenance, repair and selection, this reference manual includes over 60 photographs, diagrams and tables to review battery theory and construction, demonstrate proper battery selection, illustrate charging method and equipment, demonstrate battery testing and techniques, and to present correct battery room layout.

Copies of Bulletin No. GB-1599A may be obtained from: Dept. MPM, Gould-National Batteries, Inc., Trenton 7, N.J.

NEW REPORT DISCUSSES REVERSE CURRENT CLEANER

The use of a new cleaner for reverse current cleaning of steel before plating is the subject of a service report recently published by Oakite Products, Inc., manufacturers of metal cleaning and conditioning materials. The report explains how Oakite Composition No. 90 was carefully formulated to combine the properties desirable in a reverse current cleaner: high conductivity, superior smut removal, controlled foaming, and long life in solution. Additional information concerning this new electrocleaning material is available from Dept. MPM Oakite Products, Inc., 157 Rector Street, New York 6, N. Y.

HOW TO STITCH

METALS TO METALS

A newly published booklet, "Metal Stitching, a New Idea in Fastening", is now available. The 16 page booklet gives detailed information on stitching metal to metal or metal to non-metallic materials and illustrates several typical applications, some of which have increased production up to seven times and cut materials costs by 66 per cent. The booklet can be obtained from Dept. MPM, Acme Steel Company, 135th Street and Perry Avenue, Chicago 27, Illinois.

FLYING-PRESS BROCHURE

It is said that the production rate increase on a new type of press operation has been 400%. With the so-called "Flying-Press" 300 pieces per minute can be formed, in contrast to 75 pieces per minute on a conventional press. The part is .035 gauge strip steel with an index length of three inches. For more

to Page 78 →

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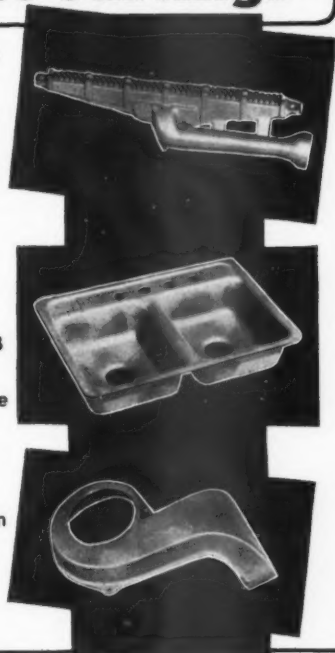
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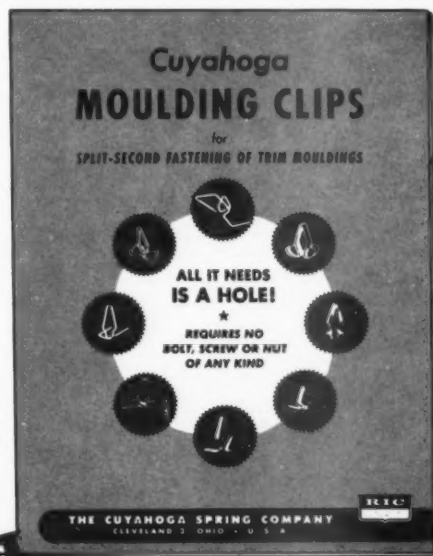


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IN STANDARD AND CUSTOM DESIGNS**

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MT. VERNON... another user of PERMA-VIEW WINDOWS



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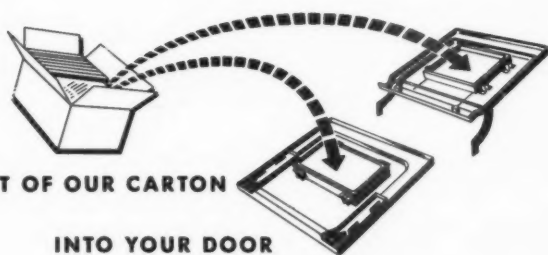
We can manufacture any shape, any size, any thickness to meet your engineering requirements. Alternate methods of attachment may be used.

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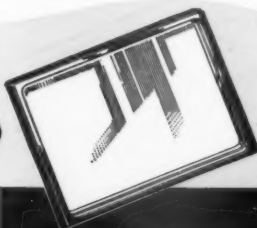
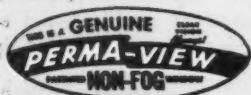


OUT OF OUR CARTON

INTO YOUR DOOR

Mr. Charles H. Fredricks, Sales Manager, Mt. Vernon Furnace & Mfg. Co. has the following to say regarding PERMA-VIEW windows:

"We have been using Perma-View windows exclusively for the past 7 years. The quality and workmanship and simplicity have been of great assistance to us in the field of sales and service. Perma-View windows in Vernois Ranges have added eye appeal to every range which aids us in gaining consumer acceptance and closing sales. The simplicity of design and quality workmanship have been of great assistance in production and service. We will continue to use this fine product in our future products."



MILLS PRODUCTS INCORPORATED

1015 WEST MAPLE ROAD

WALLED LAKE, MICHIGAN



ADMIRAL INVESTS \$5,000,000 FOR 1958 APPLIANCES

Admiral Corp. has invested over \$5,000,000 in new automatic production equipment, tools, and dies for its completely-redesigned 1958 lines of appliances. The company's new electric ranges and room air conditioners were introduced in November and its new lines of refrigerators and home freezers were announced at the end of 1957.

James R. Oberly, vice president-appliances, said that the \$5,000,000 investment covering the production of the new lines is the largest ever made by Admiral.

GAMA ADMITS NEW MEMBERS

Election of seven companies to membership in the Gas Appliance Manufacturers Association has been announced by Harold Massey, managing director of the trade association. In addition, new members have been admitted by various GAMA divisions.

The new members and their products are as follows: Anthes Imperial Co., Ltd., St. Catharines, Ont., Can.—boilers, furnaces, and conversion burners; Arkla Air Conditioning Corp., Evansville, Ind.—home heating and cooling units; Comstock-Castle Stove Co., Quincy, Ill.—commercial cooking equipment; Hasche Engineering Co., Johnson City, Tenn.—gas reforming equipment and peak shave plants.

Also, McQuay-Norris Manufacturing Co., St. Louis—solenoid valves and controls; The Montague Co., San Leandro, Calif.—commercial cooking equipment; and Standard Connector and Manufacturing Co., Los Angeles—appliance connectors.

WASTE KING EARNINGS UP 127% ON 24% SALES RISE

An earnings increase of 127 per cent, and a sales rise of 24 per cent, were reported recently by Waste King Corp. for the six months ended Sept. 30, 1957.

Bertram F. Given, president of the Los Angeles appliance manufacturer, said earnings applicable to common stock for the first six months of the current fiscal year were \$218,246, the equivalent of 89.5 cents per common share on 243,764 shares outstanding.

Earnings were \$80,871, or 38 cents per share, on 215,192 shares outstanding for the like period a year earlier.

Sales for the six months were \$8,718,200 as compared to \$6,991,870 for the comparable 1956 period.

SIEGLER CORP. 3rd-QUARTER EARNINGS REACH RECORD HIGH

For the three-month period ended September 30, 1957, sales and net earnings of The Siegler Corp., Anaheim, Calif., reached record highs, it was announced recently by John G. Brooks, president, in a speech delivered before the New York Society of Security Analysts.

Sales for the recently-concluded quarter totaled \$16,662,835, which more than doubled gross income of \$6,881,386 for the comparable period in 1956, Brooks stated. For the first quarter of 1957, net earnings amounted to \$368,602, or 31 cents a share on the 1,179,273 shares outstanding at the end of the period. This compares with a profit of \$272,559, or 37 cents a share, for the three-month period ended September 30, 1956, at which time there were 743,554 shares outstanding.

CONSTRUCTION STARTED ON HOTPOINT COMPRESSOR PLANT

Hotpoint Co. began construction the week of December 9 on the first new appliance factory planned in the company's recently-announced expansion program.

John C. Sharp, president, said other plants and offices for the huge 770-acre tract northwest of Chicago are in the planning stages now and that step-by-step additions will be made to meet market needs.

The first new factory, scheduled for completion this year, will start producing a new kind of refrigerator compressor by early 1959, he said. Initially, the plant will employ from 300 to 500 persons.

In his first progress report on the

company's new expansion, Sharp said the long-term growth picture of the electric appliance industry is very strong. "To meet the needs of the nation's growing population over the next 15 to 20 years, and just keep pace with the expanding appliance market, it is necessary that plans and actual construction of new facilities go forward now," he said.

RELINQUISHES CHAIRMANSHIP

Walter G. Seeger, chairman of the board of directors of Whirlpool Corp., has relinquished this position effective



January 1, it was announced recently by Elisha Gray II, president.

Seeger will continue as a director. The board of directors has no plans to fill the vacated position, Gray said.

Seeger stated, "I would like to decrease my formal business activity. To this end I have planned to relinquish my position as chairman of the board of directors."

Seeger, who joined Seeger Refrigerator Co., St. Paul, Minn. in 1907, was chairman of the board when it merged with Whirlpool Corp. in Sept. 1955. He has been chairman of the board and a director of the new company, Whirlpool-Seeger Corp., later changed to Whirlpool Corp., since it was formed.

ALABAMA ENAMELING FIRM CHANGES NAME

The enameling firm formerly known to MPM readers as Alabama Porcelain Enameling Co., Birmingham, has changed its name to Alabama Porcelain Enamel Products Corp., it has been announced. Post Office box number, street address, and telephone number remains the same.

A change in management personnel has also been made, as follows: Robert E. Jones, president and general manager; Noble D. Jones, vice president; and David W. Davies, manager of sales.

RESISTANCE WELDER SHIPMENTS REFLECT CONSTANT LEVEL IN 1957

With information covering the first ten months of 1957 now available, the members of the Resistance Welder Manufacturers' Association have reported total shipments of about \$27½ million worth of machines and equipment during the year. It is anticipated

that the complete year will be about the same as 1955 volume, the second best year in the history of the Industry.

While shipments during 1957 were not nearly as great as the record year enjoyed by member companies during 1956, a rather consistent level of activity month by month during the year had been maintained. October was the tenth consecutive month during which dollar shipments were at, or above, \$2 million.

New orders have increased steadily in the past several months, and members are optimistic that 1958 will show a continuation of this trend. Backlog at the end of October was reported at more than \$7½ million.

MURRAY CORP. PURCHASES EASY MFG. FACILITIES

B. C. Gould, president of The Murray Corp. of America, announced that Murray had purchased all of the manufacturing facilities used by its Easy Laundry Appliances division in Syracuse, N. Y., including all land, building, machinery, and equipment. An option to purchase these facilities was scheduled to have expired in August of this year.

The Easy Laundry Appliances division had been leasing these properties from the present owners, Union Chemical and Materials Corp. Prior to its purchase by Union Chemical in August, 1955, the Syracuse property had been owned by the Easy Washing Machine Corp.

Gould stated that the transaction would enable Easy to effect a modernization program of its plant facilities, and would lead to an increase in production efficiency.

ROPER'S SORBY NEW PRESIDENT OF NATIONAL LP-GAS COUNCIL

E. Carl Sorby, vice president, Geo. D. Roper Corp., wholly-owned subsidiary of the Florence Stove Co., Kankakee, Ill., was elected president of the Na-

tional LP-Gas Council at a recent meeting of the council board of directors in Dallas, Texas.

W. F. DeVoe, manager of LP-Gas Sales, Phillips Petroleum Co., Bartlesville, Okla., was elected chairman of the Executive committee, second ranking position in the council. Harry J. Morley, vice president of the FauceHot Heater Co., La Porte, Ind., was re-elected treasurer.

Since the council's organization in 1950, the liquefied petroleum gas industry has invested \$2,750,000 in its advertising and public relations program to increase the use of modern LP-Gas service in small town, suburban, and rural areas. LP-Gas is used for automatic house heating, water heating, cooking, refrigeration, clothes drying, incineration, air conditioning, and a variety of farm uses.

BILL SHAW DIES

William Shaw, 72, of 3000 Sheridan Road, Chicago, passed away at his home on Friday, November 22nd.

Bill Shaw, as he was known in the appliance field, operated a public relations and publicity firm. He was well known in the appliance field for his many years of work with the American Home Laundry Manufacturing Association and the Vacuum Cleaner Manufacturers Association.

UTILITIES URGED TO PUSH SALE OF COMMERCIAL GAS

Cooperation of top management of gas utility companies will be the goal of a new kind of "PEP" campaign on the part of manufacturers of hotel, restaurant, and commercial gas equipment.

The established GAMA "PEP" Prize Contest, sponsored by the Hotel, Restaurant and Commercial Gas Equipment Division of the Gas Appliance Manufacturers Association, is aimed at promot-

ing the sale of commercial gas equipment by giving awards to utility companies who do outstanding selling jobs. The new campaign will seek to strengthen utility commercial sales efforts by alerting top management to the desirability of building the commercial gas load.

Although more than 90 per cent of all meals served in public eating places are cooked with gas, the commercial load is taken for granted in many areas, according to Tracy Madole, chairman of the GAMA division. Madole told the group in a meeting at Essex House, New York, that most commercial sales departments are undermanned, and in many instances, practically non-existent.

PROCESSING MANUAL RELEASED BY PEI

A new manual, destined to be a valuable aid to shop personnel in the porcelain enameling industry, was recently released by PEI's Process Development committee.

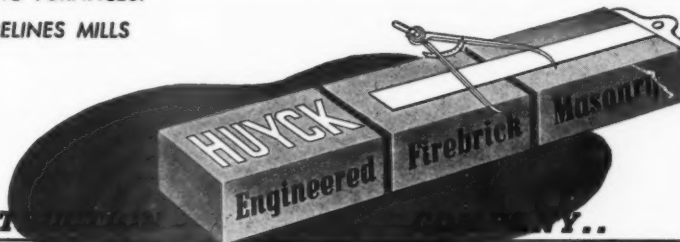
The 32-page manual, PROCESS CONTROLS, is divided into 2 major sections — enamel slip controls and pickle room controls. The manual also contains an appendix which discusses Standard report forms used in the enameling shop.

H. F. Russell, Ingersoll Products Div., Borg-Warner Corp., is chairman of the Process Development committee which devoted the principal part of its 1957 program to the preparation of the manual. Direct responsibility for the material incorporated in the book was assumed by a Subcommittee on Process Controls, made up of H. C. Wilson, Vitreous Steel Products Co., chairman; R. S. Goldthwaite, Rutenber Electric Co.; and Russell.

Single copies of the manual are being distributed to all official representatives of PEI member companies. The manual may be ordered from PEI at a cost of \$2.00 per copy.

HUYCK FURNISHES FIREBRICK MASONRY TO BUILD, REBUILD AND REPAIR ALL TYPES OF: ENAMELING FURNACES . . . FRIT SMELTERS . . . ALUMINUM, BRASS, LEAD SMELTERS . . . FORGE FURNACES . . . HEAT TREATING FURNACES.

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**larger size panels
lower temperature**

Chicago Vit

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Now a new day dawns . . . a day when economy dictates larger size panels and lower temperatures. And Chicago Vit is ready, with frits developed for the trend. Chicago Vit leadership has created a new business for you. And you can count on Chicago Vit leadership to make it more profitable for you in the future.

If you're interested in Architectural Porcelain Enamel you'll be making the wisest move if you get together with Chicago Vit.

CORPORATION A Division of the Eagle-Picher Company

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→ from Page 70

PORCELAIN ENAMELS

FOR ALUMINUM

MILL LINING CATALOGUE

Recent manufacturing changes, higher firing temperatures in a new, superior body formula are said to give a superior high density grinding ball that retains its shape and wears much longer than ordinary grinding balls. For information on mill linings and grinding balls write Dept. MPM for Bulletin B1-56 McDanel Refractory Porcelain Company, Beaver Falls, Pennsylvania.

FREE WALL CHART OF CONVERSION FACTORS

A reference table for engineers in wall chart form has been published. This conversion chart is useful for engineers, shop men and executives. Included are common conversions such as inches to centimeters or watts to H.P. as well as many conversions that are



difficult to locate in reference manuals. (Some such examples are atmospheres to Kgs/sq. cm, cm/sec to miles/hr, cu. ft. to liters, microns to meters, quintal to lbs., etc., etc.)

For your free wall chart of Conversion Factors, write Dept. MPM, Pre-

HOW TO PREVENT CORROSION AND PROTECT METALS

An amorphous chromate coating on zinc and cadmium surfaces is said to retard the formation of white rust or bloom. It is said to be effective on most types of electro-deposited zinc, zinc die-casting alloys, hot dipped galvanized surfaces, and cadmium plated products. The same film is available for aluminum and improves the natural corrosion resistance of the metal. For more information write Dept MPM, American Chemical Paint Company, Ambler 33, Pennsylvania.

FINISHING SYSTEMS BROCHURE

A complete description of how finishing systems can be installed, including metal cleaning, rust-proofing machines, dry off ovens, spray booths and finish and baking ovens. According to the manufacturer these systems are designed to occupy a minimum of floor space inside the plant and to do a particular finishing job efficiently and economically. Write Dept MPM for Catalogue A-658, The R. C. Mahon Company, Detroit 34, Michigan.

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INDUSTRY PERSONALS

The appointment of **Henry McConnell** as manager of the wire plant of Sylvania Electric Products Inc., Warren, Pa., has been announced by George Konkol, manufacturing manager of the company's Parts division.

McConnell, who joined Sylvania in 1950, has been manufacturing superintendent of the wire plant since 1956. Before coming to Sylvania, McConnell was with C. W. Casey Welding Works, Colorado Springs, Col.

The election of two vice presidents of Crane Co., Chicago manufacturer of plumbing and heating equipment, valves, and fittings has been announced by Neele E. Stearns, president.

They are **Maurice Nelles**, vice president for engineering, and **Paul S. Kempf**, vice president for personnel and industrial relations.

Benjamin B. Loring, vice-president since the inception of the company in 1931, has been elevated to executive vice-president and treasurer of Seaport Metals, Inc., Long Island City, N. Y., a producer of porcelain enamel on steel for building and marine installations.

H. J. Hasenohrl has been appointed a district manager for Armstrong Furnace Co. His territory will cover Northern Illinois, Wisconsin, and Upper-Michigan. Announcement of Hasenohrl's appointment was made by W. J. Olsen, vice-president and general manager.



LORING

HASENOHRL

Eugene D. Mulligan has been promoted to the position of special projects manager of the Porcelain Enamel Institute, Washington, D. C., according to John C. Oliver, PEI's managing director.

The board of directors of the A. O. Smith Corp., at its recent annual meeting in Milwaukee, reelected all of the company's present officers. In addition, in recognition of the growing importance of a number of key functions, the

board named 11 of the company's executives as new vice presidents, as follows: **Robert F. McGinn**, vice president in charge of research and development. **Walter H. Porth**, commercial vice president, international area. **Walter W. Stake**, commercial vice president, eastern region. **M. E. Morgan**, vice president in charge of procurement and traffic. **Waldo W. Higgins**, vice president in charge of engineering. **Stanley E. Wolkenheim**, vice president in charge of marketing. **George P. Hough**, commercial vice president, midwest region. **John H. Brinker**, vice president in charge of Permaglas consumer products. **L. M. Keating**, commercial vice president, southwestern region. **Allen O. Dragge**, commercial vice president, western region. **John S. Randall**, vice president in charge of Industrial Products.



HIGGINS



BRINKER

M. H. Temple has been named assistant general manager of the Richmond Plumbing Fixtures Division of Rheem Manufacturing Co., it was announced recently by John J. Hall, division president and general manager.

Boyd L. Gunn, a native of Urbana, Iowa, has started work as an industrial engineer at The Maytag Company's Plant 1, Newton, Iowa, where wringer washers are manufactured.

Gunn, 32, attended the University of Iowa in Iowa City. Before joining the company, he was employed as office manager at Hockenberg Fixture and Supply company in Des Moines.

W. J. Olsen, vice-president and general manager of Armstrong Furnace Co., has announced the appointment of **George Koutsouros** as a district manager.

His territory will include New York, Eastern Pennsylvania, New Jersey, Maryland, Delaware, Washington, D.C. and Eastern Virginia. He resides in Plymouth Meeting, Pa.

Vulcan Containers Inc., steel shipping drum and pail manufacturer, recently announced the appointment of **Lawrence M. Ferguson**, sales manager, as vice president for sales, according to Vern I. McCarthy, president. Ferguson succeeds Herbert B. Scharbach who resigned, effective November 15.

Vulcan also announced that **Eugene W. Gehm**, senior sales representative for the past 11 years, has been appointed assistant sales manager.



KOUTSOUROS



FERGUSON

Promotion of **Harry M. Kane** to the position of general manager of the RCA Whirlpool laundry appliance division of Whirlpool Corp. was announced recently by John L. Bricker, vice president. Kane, who was formerly general sales manager of the laundry division, succeeds **Jack D. Sparks**, recently appointed director of marketing for the appliance manufacturer.

In his new position, Kane will supervise new product development, advertising and promotion, sales training, and sales in the laundry division. He joined Whirlpool in 1954 as a special field sales representative. In September, 1955, he was appointed field sales manager of the company.

Robert K. Guy has been named assistant to the executive vice president, Air Moving and Conditioning Association, 2159 Guardian Building, Detroit 26, Mich.

Most recently, Guy was a sales engineer with Perfection Industries Division of Hupp Corp. Before that he was connected with the American Gas Association. He received his degree in electrical engineering at the University of Michigan in 1948.

The election of **George F. Burley** as vice president for purchasing and traffic of Crane Co., Chicago headquartered manufacturer of valves, plumbing and heating equipment, was announced recently by Neele E. Stearns, president. The new Crane vice president succeeds **Lucien W. Moore**, who resigned because of ill health after 35 years of service.

Central control

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slots in each end for the strip to pass through. Each has a full muffle construction.

The most critical phase of the process to control is the level of the two catenaries formed by the strip between the three pinch rolls which supply the drive for the moving strip. The first pinch roll is located just before the ground coat spray booths, the second

just before the cover coat spray booth, and the third is located on the exit side of the cover coat furnace. The bottom of each of the two catenaries is formed in the middle of the firing zone of each of the two furnaces. The height of the catenary is controlled by varying the speed of the rolls. Overall speed of the strip can be altered to suit the time and temperature requirements of the color being produced at the time by speeding up or slowing down the drive rolls. All three of the rolls are

synchronized, so that only one adjustment is needed to alter the speed of the entire line.

After emerging from the ground coat furnace, the strip is allowed to cool before it reaches the second pinch roll. The cover coat is then sprayed on, dried, and fired. Sufficient space is allowed for cooling the cover coat before the strip reaches the third pinch roll.

"Daylight" color inspection

The finished porcelain enameled strip is passed beneath a specially-constructed lamp that is the closest thing to daylight obtainable, for checking color match and locating possible defects. Immediately after inspection, the strip is coiled ready for shipment as is, or ready to be laminated to any kind of rigid board a customer wishes.



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Please send me a sample of GOLDIE the CROMAID and your folder "New Dimensions in Product Design."

Name.....Title.....

Firm.....Address.....

City.....Zone.....State.....

Write TODAY for IDEAS

IAM

→ from Page 52

run. The way the consumer chooses to buy a product basically determines the way the product will flow. Marketing must be flexible and manufacturers must watch like a hawk the choice of the public as to where they will buy a product when offered through various channels.

Dr. Davidson is one who favors integration of sales and advertising, market research, etc., and the selection of a man to serve as Director of Marketing to obtain optimum results.

Sales management men who decry the use of "canned" presentations will favor Davidson's statement that the best personal selling does not involve a routine following of certain prescribed steps in selling procedure, but, rather, the establishment and maintenance of favorable salesman-customer relationships.

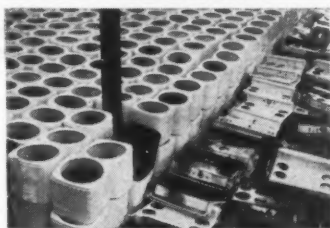
A. B. Ritzenthaler, vice president of the Tappan Stove Company, in speaking before the group, reported the fact that a number of expressions had come to him indicating that the meeting in Washington was the most valuable for the industry since the Institute was formed.

Cincinnati in June

In reporting plans for 1958, IAM officials stated that the 26th annual convention and exhibit is scheduled for the Netherland-Hilton in Cincinnati on June 1, 2 and 3, 1958. It was reported at the meeting that the annual year-end meeting, scheduled for December, 1958, will be held in Dallas, Texas.

D-ENAMELING*

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Once D-Enameling was a temporary expedient which appliance manufacturers used to stretch critical steel supplies. But that day is gone! Now, the nation's leading appliance manufacturers consider D-Enameling a permanent part of their manufacturing picture. D-Enameling has come of age . . . has assumed its role as a routine step in appliance manufacturing. The reason is simple—D-Enameling is a money saver! D-Enameling transforms scrap loss into profit dollars.

**these industry leaders
know from experience that
D-Enameling transforms scrap
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Manufacturers

Sanitary Ware Manufacturers

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Job Enameling Plants

Space Heater Manufacturers

Range Manufacturers

Water Heater Manufacturers

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NEWS about Suppliers

FEDERAL ACQUIRES INTEREST IN BERKELEY-DAVIS

A. Blagden, president, Berkeley-Davis, Inc., Danville, Ill., recently announced that The Federal Machine and Welder Co. has acquired a controlling interest in the Danville firm. The concern has been in operation for several years as a builder of special machinery and equipment used in automatic arc welding, and has been owned and operated by John P. Berkeley and Charles Davis.

NEW PRESIDENT FOR PRESSURE SENSITIVE TAPE COUNCIL

C. Gregg Geiger, merchandise manager of the Dutch Brand division of Johns-Manville Sales Corp. was elected president of the Pressure Sensitive Tape Council at its Fifth Annual meeting in Miami Beach, Fla. Geiger, a charter member of the council, has previously served as its vice president and chairman of its Projects Planning and Public Relations committee.

NEW HEATING UNIT HAS RESISTANCE WIRE INTEGRAL WITH CASTING

Heating units can now be made so that the resistance wire heat source is integral with a casting. The newly-patented process for manufacturing electric heaters and heating elements is called "Adaptatherm" by its inventors, H. W. Tuttle and Company, Adrian, Mich.

A glass fiber insulated resistance wire of 80-per cent nickel and 20-per cent chrome, which can be bent to any shape desired, is placed in a foundry-type mold. Molten aluminum is poured into the mold, completely surrounding the wire with the exception of the terminal ends. The bond between the wire and the aluminum is said to be extremely good.

The casting can be made in a wide variety of shapes, such as the die for extruding liquid plastic, the element for an electric dryer, the surface element for an electric range, a heater for a radar installation, or it may even be the leading edge of an airplane wing where it acts as a de-icer.

According to temperature tests run by the company, relatively-small differences exist between the wire skin temperature and the surface temperature of the casting. As a result, the uniformity of heat over the surface is said to be very good and the current leakages very low. The effective heat, produced therefore, is quite high, according to the tests.

Marian Ryan, home economist for Detroit Edison, Mrs. M. K. Tuttle, president, and H. W. Tuttle, Jr., vice president, H. W. Tuttle & Co., Adrian, Mich., note difference in heat pattern between conventional and "ADAPTATHERM" griddles.



ALLEGHENY LUDLUM SALES AND PROFIT POTENTIAL UP

Allegheny Ludlum Steel Corp. has substantially increased its sales and profit potential through the startup in 1957 of major new steel finishing and processing facilities, E. J. Hanley, president of the Pittsburgh-based firm, said recently.

Speaking to the Security Analysts of San Francisco, Hanley said, "This new capacity will give us, for the first time in many years, the ability to take care of our customer requirements during periods of peak demand, thus enabling us to improve our competitive position. At the same time, our finishing capacity has now been brought pretty well in balance with our melting capacity."

Markets for stainless and electrical steels have roughly doubled in the past ten years, and should continue to grow at approximately the same rate in the years ahead, Hanley added.

RANCO APPOINTS NEW DIRECTOR OF RESEARCH, CHIEF ENGINEER

The appointments of F. A. Greenawalt as director of research, and J. E. Kumler as chief engineer have been announced by A. M. Hoover, president of Ranco, Inc., Columbus, Ohio, manufacturer of refrigeration, air conditioning, laundry equipment, and automobile heater controls.

Greenawalt had served as the company's chief engineer since 1945. Kumler served 14 years as design engineer and, for the past three years, has been factory manager.

SHELL CHEMICAL OPENS NEW DISTRIBUTION FACILITIES

New facilities for the distribution of Shell Chemical Corporation industrial chemicals have been opened to serve the Dallas and Fort Worth areas, the company announced recently.

The terminal, located at 1809 Rock Island, Dallas, will permit delivery of glycerine in drums, Epon resins in drums and bags, and the complete line of Shell solvents in tank trucks and drums.

The company's technical salesman, O. D. Walraven, will be located at the same address.

J. O. ROSS ENGINEERING AND MIDLAND STEEL MERGE

The merger of J. O. Ross Engineering Corp., including its subsidiaries, and The Midland Steel Products Co. became

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SUPPLIER PERSONALS

Promotion of four executives of Sharon Steel Corporation, two in production and two in sales, was announced by A. M. Tredwell, Jr., president.

Henry G. Evans, general works manager of the Roemer Works, Farrell, Pa., has been appointed general manager of operations for the corporation. *William A. Horning*, assistant general manager of the Roemer works, became general works manager at that plant.

A. G. Neese, manager of stainless and alloy sales, and *Charles W. Diven, Jr.*, district sales manager for the Philadelphia territory, were both appointed assistant general sales managers. Diven transferred to Sharon from Philadelphia.

Evans has been general works manager at Roemer since 1953. He joined the company in 1933, and has held various positions including foreman, plant metallurgist, and blooming and bar mill superintendent. Horning has been his assistant since 1953, having joined Sharon in 1946 as plant superintendent of the Detroit Tube & Steel Division.

Neese has been with the company since 1937, and was named manager of stainless and alloy steels in 1954 after serving in Detroit and Chicago sales offices. Diven joined Sharon two years later, and has been district sales manager in Philadelphia since 1954.

Frank Edwards has been appointed plant superintendent, Ceramics Division of The Patterson Foundry and Machine Co., it was announced by C. W. Gerster, president. Edwards comes to Patterson from Knox Porcelain Co., where he was manager of the low voltage division.

Northwest Chemical Company of Detroit has announced the appointment of *Rex MacKercher* as special representative on product application. MacKercher will work closely with Northwest's customers in supplying information on products and methods developed in Northwest Chemical Company's laboratories.

The transfer of *D. L. Bohon*, from his position as regional sales manager for the West Coast to the home office sales department of The DeVilbiss Co. in Toledo has been announced by H. M. Kidd, vice president — sales. He will be replaced by *George W. Fulton*, who becomes West Coast regional sales manager with headquarters at the DeVilbiss direct factory branch in Los Angeles.

The board of directors of Pennsalt Chemicals Corp. recently appointed *W. Cooper Willits* treasurer. Willits has been assistant to the president since joining Pennsalt in November, 1956. He was formerly associated with Kidder, Peabody & Company.

Appointment of *Fred Coker* as purchasing agent of Fulton Sylphon Division, Robertshaw-Fulton Controls Company, was announced by Freeman G. Cross, vice president and divisional general manager.

The division manufactures automatic temperature and pressure controls for use in industry and the home. Coker formerly was assistant purchasing agent and, prior to that, served as a buyer. He joined the company in 1940 as general clerk.

The J. O. Ross Engineering Corp., New York, N.Y., has recently announced the appointment of *Jean F. Gschwind* as vice president of development and research, a new office in the company. He will be in charge of all development and research activities concerning Ross air processing systems, used in such fields as paper, textile, automotive, paint finishing, foundry, heating, drying, etc. Gschwind has been with Ross Engineering for more than 20 years, his most recent post being vice president and general manager of the Ross Midwest Fulton Corp. in Dayton. Other positions held include head of the development laboratory, and manager of the Supertherm department.

John L. Jadrych has joined the sales engineering staff of Dahlstrom Machine Works, Inc., Chicago, designers and builders of metal fabricating equipment. He was formerly with Steel Equipment Co., Cleveland, Ohio.

Two top production executives have been appointed at the Hartford City Division plant of Fort Wayne Corrugated Paper Company by David M. Hartman, division manager.

They are *Carl Forsberg*, new production manager, and *Phillip M. Ziegler*, new plant engineer.

Geo. Tuttle, who for 17 years has been a ceramic engineer at Benjamin Electric Mfg. Co., has joined the Century Vitreous Enamel Co., Chicago, as sales and service engineer. Prior to his work with Benjamin, Tuttle was with Frigidaire and Pemco Corp. His experience in the porcelain enameling field totals 27 years.

Appointment of *Charles J. Petry* as assistant to the chairman was announced recently by Frederick M. Gillies, chairman of the board, Acme Steel Co., Chicago.

Petry will devote his efforts toward coordinating and expediting the construction of new steel making facilities at Acme Steel's Riverdale location, and will assume other related responsibilities both at Riverdale and at Acme-Newport Steel Co., Acme Steel subsidiary located in Newport, Ky.

R. W. Davison has been appointed director of sales planning and coordination of Armco Steel Corp., L. T. Johnston, vice president of sales, announced recently.

Davison, who was formerly manager of sales in the Houston area for the Sheffield Division of Armco, reported to his new assignment in Middletown on January 1.

Davison's experience in Sheffield Division sales will enable him to make an important contribution to the activities of the Armco headquarters sales staff, Johnston pointed out.

EDWARDS



MACKERCHER



COKER



GSCHWIND



PETRY



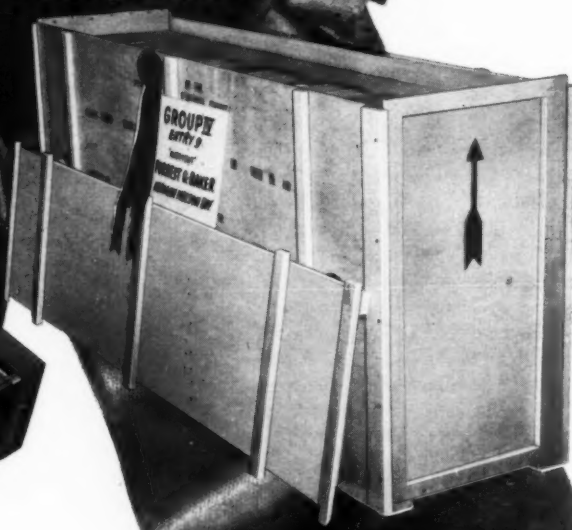
DAVISON



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IN THE 1957
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AWARD

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editorial voice of the national safe transit program

devoted to improving packaging methods and shipping and materials handling methods for the appliance and metal products manufacturing industries. This section contains plant experience information and industry advances for the use of all executives and plant men interested in improving packaging and shipping methods and in loss prevention. The section contains complete information on the national safe transit pre-shipment testing program for packaged finished products and detailed reports of divisions and sub-committees of the National Safe Transit Committee.

FOOD EQUIPMENT MANUFACTURERS HEAR SAFE TRANSIT BENEFITS

The National Association of Food Equipment Manufacturers provided a very receptive audience for the first public showing of the new NST full color sound film, "A Blindfold Removed," at the Coliseum in New York City on November 10. The viewers represented top management and key sales personnel of member companies of the association in session for their annual meeting.

The film and explanation of the NST Program by General Chairman R. F. Bisbee evoked considerable favorable comment. K. L. Seelbach, president of The Cleveland Range Co., Cleveland, Ohio, and Tracy Madole, vice president of the Malleable Steel Range Manufacturing Co., South Bend, Ind., each expressed amazement at both the clarity

and the simplicity of the entire NST Program as portrayed by the film.

A representative whose company is certified under the Safe Transit Program made this statement to those in attendance, "My company has benefited by a damage cost reduction of over 10 per cent since becoming a participant in the Safe Transit Program. We view it as one of our most important profit-making devices."

There was agreement by all present that the new film more than adequately performed its mission of telling the National Safe Transit story, and that it was especially good for the layman.

The NST Committee is grateful to the NAFEM for its cooperative and friendly attitude as host to the film premiere.

ing corrugated box volume and opening new markets for wire-bound packages.

The board of directors designated three officials to lead the expansion program. J. A. Cragwall was elected chairman of the board (now an active officer of the company). T. W. Regan,* formerly vice president and sales manager, was elected president to succeed Cragwall. D. B. Forrester, Jr. was appointed to succeed Regan as vice president and sales manager.

(*See Chicago Survey report, this section)

INLAND CONTAINER CORPORATION TO BUILD EVANSVILLE PLANT

Inland Container Corporation has announced plans for the immediate construction of a new corrugated box plant in Evansville, Ind., with expanded facilities and services for its customers in Evansville and surrounding areas. The new plant will provide 150,000 square feet of manufacturing space, and it is anticipated that it will be ready to start operations in the latter part of this year.

George B. Elliott, president, called attention to the important role of corrugated shipping containers in the distribution and protection of industrial products so essential in sustaining the payrolls and employment of our economy.

H. E. Curtis, a 30-year veteran with Inland and now division sales manager of the Evansville plant, will share the management of the new plant with J. G. BaShaw, production manager, who will be in charge of manufacturing opera-

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NEW STAFF MEMBERS FOR NST

The appointment of two staff members to the National Safe Transit Committee was announced recently by John C. Oliver, secretary of the Committee, who stated that this action was a part of the expanded program now underway by NST.

William M. Wilkinson will aid in the coordination of the Washington office's administrative affairs and supplement its public relations activities with industry. Assisting in the administration of NST's program is Mrs. Louise T. Varn.

Mr. Wilkinson, educated at Long Beach City College, California and the University of Maryland, is a former army officer who held the rank of major at the time of his separation. His 15 years of military service encompassed

World War II and the Korean conflict, including duty as a Military Government Administrator in Korea and Instructor of Military Intelligence in Germany.

Mrs. Varn, a native of Pennsylvania, attended Madison College and studied nursing for two and one half years. Her previous business experience includes seven years as a medical secretary in Washington, D. C.

GENERAL BOX ANNOUNCES EXPANSION PROGRAM

General Box Co., with executive offices at Des Plaines, Ill., has announced an expansion program which is currently under way. The announcement states that a definite program of expansion within the company is aimed at increas-



The imprinted label procedure would be satisfactory providing a good control could be worked out. It would be practical to use it on wooden boxes as well as cartons.

MPM PHOTOS

Cribben & Sexton had greatly benefited from using the present Program due to the reduction in damaged porcelain enamel products and better relations with carriers and customers.



Bisbee and W. C. Wilkinson, assistant to the president, Cribben & Sexton Co.

T. W. Regan, president, N. A. Fowler, vice president, General Box Co., and R. F. Bisbee, NST general chairman.

NST Chicago

(exclusive from the Wa

R. F. Bisbee, general chairman of the National Safe Transit Program, and Committee Members Dana Chase and A. B. Friedmann, have completed a survey of fifteen NST certified manufacturers in the Chicago area. The purpose of the survey was to determine directly from the manufacturers what they felt to be the benefits and needs of the program, and to explore plans for expansion.

The fifteen companies contacted included four certified laboratories — General Box Co., Gaynes Engineering Co., Chicago Mill and Lumber Co., and International Paper Co. The eleven certified companies were Cribben & Sexton, Hotpoint Co., Refrigerator Appliances, Inc., Ortman-McCain Co., Mitchell Mfg. Co., Admiral Corp., Crown Stove Works, Rheem Mfg. Co., John Wood Co., Ingersoll Products, and Century Products. In most instances, meetings with company representatives had been arranged by Editor Dana Chase and A. B. Friedmann of Chicago Vitreous Corp., who were with Mr. Bisbee for most of the informative conferences.

It was the general consensus of the manufacturers interviewed that one of the major services NST could render would be through the publication of "case histories" of benefits manufacturers were realizing through their actual experience in using the program. The interviews themselves confirmed the service that such "case histories" could make. They revealed, for instance, that the manufacturers had joined the program for many different reasons, and that few were receiving all the six benefits the program offers.

Many of the manufacturers were unaware of how effective the Test Procedures were as a tool for engineering. Others were not using the program as a means for reducing packaging costs.

Bisbee and John C. Sharp, president,
Hotpoint Co.

Survey report

(from the Washington office)

Many listed the value of using the label as a major reason for their participation in the program. All were enthusiastic about those benefits they were receiving through participation, and eager for materials that would be helpful in expanding their own Safe Transit activities.

A majority of those queried favored the use of the present red and yellow label as a means of identification of their packaged product. However, they also agreed that an imprinted label used by those desiring it would further the benefits of National Safe Transit to many participants in the program. Considerable interest was aroused by the statement that a pilot project using the imprinted label was to be underway by January, 1958.

The survey pointed up the need for more frequent visits by representatives of National Safe Transit to the certified participants in the field for the purpose of exchanging ideas and information and rendering assistance where needed.

Response to the announced expansion plans of National Safe Transit was unanimously favorable. All agreed that a fair and equitable plan was necessary that would consider the interests of both large and small companies participating in the program.

The news that R. F. Bisbee, general chairman of NST, is now devoting his full talent, time, and resources to the promotion of National Safe Transit was acclaimed as a real step forward. His presence in the field so soon after his retirement from Westinghouse last July was received as an indication that National Safe Transit is ready to roll as never before. Bisbee's enthusiasm for Safe Transit, backed by thirty-eight years of experience in industry, was recognized as a powerful force to further Safe Transit's long term objectives.

(see later report on a New York survey)



All top management is very reluctant to add or join additional associations which involve meetings or red tape.

MPM PHOTOS

The laboratories in the United States who have joined the Program could not help but have benefited due to the fact that a standardized testing procedure puts laboratories in a competitive position.



Bisbee and Arthur L. Whiton, vice president, Chicago Mill and Lumber Co.

TOUGH AS A TUSKER!

FOR FULL PROTECTION AGAINST SHIPPING HAZARDS



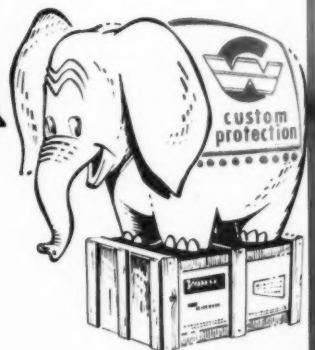
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UTILITY CRATE CORPORATION
1015 TOWNSHIP STREET
LOS ANGELES 21, CALIF.

THE **WATKINS CONTAINER** MANUFACTURERS

News about suppliers

→ from Page 82

effective on December 7, 1957. The name of the new company is now Midland-Ross Corp., according to the president, Wade N. Harris.

Midland-Ross, headquartered in Cleveland, is now made up of four fully-decentralized operating divisions — the Cleveland, Detroit, Owosso, (Mich.) and the J. O. Ross Engineering divisions. Saxton W. Fletcher, continues as president of the Ross Division which includes the Ross subsidiaries — John Waldron Corp., Ross Midwest Fulton Corp., and Ross Engineering of Canada, Limited.

In the engineering and processing fields, the new company designs and produces atmosphere-control systems for baking, drying, curing, cooling, and other air-treating processes. It is engaged in engineering and building complete systems for the finishing and painting of all types of industrial products.

J&L BUILDING \$16,300,000

STAINLESS STEEL PLANT

Jones & Laughlin Steel Corporation will spend some \$16,300,000 for plant and equipment at its new stainless steel sheet and strip mill now under construction at Louisville, Ohio, near Canton.

With operations scheduled to begin in the third quarter of 1958, the plant will employ about 450 people and have an annual payroll of about \$2,000,000 when it attains normal operations.

Martin K. Schnurr, J&L's president, announced the appointment of Alex A. DeBlander, presently of East Liverpool, O., as plant superintendent. DeBlander, with 25 years' experience in stainless steel production, comes to the J&L organization from the stainless cold strip and sheet mill of Crucible Steel Company at Midland, Pa.

BRAZIL INVESTIGATING

ITS IRON ORE POTENTIAL

Large quantities of high grade Brazilian iron ore concentrates will be available at a minimum production cost, a survey of the potential of itabirite ores in that country has revealed.

The survey is being conducted for the Brazilian government by the international research department at Armour Research Foundation of Illinois Institute of Technology, Chicago.

The itabirite ore, a mixture of quartz and hematite, has tremendous potential, an ARF report states, but awaits development of suitable beneficiation techniques for extensive exploitation.

METAL PRODUCTS STATISTICS

a current report on available production, shipment and sales figures for important products in the appliance and fabricated metal products manufacturing field

GAS WATER HEATERS — October shipments 240,900, 7.2 per cent over '56; January-October 2,192,300, 9.4 per cent below '56.
GAS RANGES, BUILT-IN — October shipments 19,300, 19.1 per cent over '56; January-October 162,900, 19.6 per cent over '56.
GAS RANGES, FREE STANDING — October shipments 180,000, 11.3 per cent below '56; January-October 1,519,400, 12.7 per cent below '56.
GAS FURNACES — October shipments 86,800, 6.5 per cent over '56; January-October 616,300, 12.2 per cent below '56.
GAS FIRED BOILERS — October shipments 14,400, 6.7 per cent over '56; January-October 87,100, 3.8 per cent over '56.
GAS CONVERSION BURNERS — October shipments 24,400; 3.6 per cent below '56; January-October 142,900, 15.7 per cent below '56.
ELECTRIC REFRIGERATORS — October shipments 245,500, 15.7 per cent over '56; January-October 2,873,000, 11.1 per cent below '56.
ELECTRIC FREEZERS — October shipments 58,700, 12.6 per cent below '56; January-October 304,000, 6.9 per cent below '56.
ELECTRIC RANGES, BUILT-IN — October shipments 39,100, 16.7 per cent over '56; January-October 352,900, 6.8 per cent over '56.
ELECTRIC RANGES, FREE STANDING — October shipments 75,100, 9.2 per cent below '56; January-October 775,300, 23.8 per cent below '56.
ELECTRIC WATER HEATERS — October shipments 66,400, 8.3 per cent below '56; January-October 653,400, 14.6 per cent below '56.
ELECTRIC DISHWASHERS — October shipments 38,800, 72.5 per cent over '56; January-October 330,900, 2.0 per cent below '56.
ELECTRIC FOOD WASTE DISPOSERS — October shipments 46,500, 9.9 per cent over '56; January-October 443,600, 10.9 per cent below '56.
COMBINATION WASHER-DRYER — October factory sales 18,931, 83 per cent over '56; January-October 151,488, 93 per cent over '56.
WASHERS, AUTOMATIC & SEMI-AUTOMATIC — October factory sales 283,558, 16 per cent below '56; January-October 2,367,491, 14 per cent below '56.
WASHERS, WRINGER & ALL OTHER — October factory sales 85,929, 14 per cent below '56; January-October 99,887, 22 per cent below '56.
ELECTRIC DRYERS* — October factory sales 125,240, January-October 689,761.
GAS DRYERS* — October factory sales 60,532, January-October 311,102.
IRONERS — October factory sales, 4,336, 25 per cent below '56; January-October 34,831, 26 per cent below '56.
VACUUM CLEANERS — October factory sales 328,655, 11.7 per cent below '56; January-October 2,701,548, 13.9 per cent below '56.
METAL FURNITURE — October shipments 4 per cent below '56; January-October 7 per cent below '56.
TELEVISION — September shipments 789,675, 4.6 per cent below '56; January-September 4,249,775, 7.2 per cent below '56.
RADIO** — September shipments, 1,056,274, 26.5 per cent over '56; January-September 5,844,280, 9.7 per cent over '56.
COMPRESSOR BODIES (Including Automobile Units) — Shipments for August 147,496, 56 per cent below '56; January-August 3,146,163, 10.4 per cent below '56.
STEEL SHIPPING BARRELS & DRUMS — September shipments 2,763,280, 1.4 per cent below '56; January-September 26,846,357, 8.2 per cent below '56.
STEEL PAILS — September shipments 5,941,946, 10.6 per cent below '56; January-September 57,978,728, 10.1 per cent below '56.
TYPEWRITERS — October factory shipments 171,733; January-October 1,402,156.

Sources for this information: Gas Appliance Manufacturers Association, National Electrical Manufacturers Association, American Home Laundry Manufacturers Association, Vacuum Cleaner Manufacturers Association, National Association of Furniture Manufacturers, Electronic Industries Association, Air-Conditioning and Refrigeration Institute, and U.S. Dept. of Commerce.

*Note: The above 1956 data have been adjusted to reflect combination washer-dryer sales separately. Combination sales are not counted as either an automatic washer or an automatic dryer. For 1956, breakdown of gas and electric dryer data from which gas and electric combination data have been subtracted, cannot be released without disclosing individual company information.

**Does not include automobile radios.

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Customer Service

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HELP WANTED

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PRESS TIME NEWS

C. L. VAN DERAU DIES

Clarence L. Van Derau, general works manager for four factories of the Westinghouse Electric Appliance Divisions until his retirement last September 1, died Tuesday night, December 24 in Mansfield, Ohio General Hospital after a lingering illness. He was 65 years of age.



A native of Marysville, Ohio, Mr. Van Derau served 35 years with Westinghouse, beginning in September, 1922, as manager of the plating, polishing, and buffing departments of the Mansfield plant. He was appointed works manager in 1935 and general works manager six years later.

At the time of his retirement, his responsibility included all phases of the factory manufacturing processes at Westinghouse plants in Mansfield, Columbus, and Newark, Ohio, and East Springfield, Mass.

GLOBE AMERICAN AND VULCAN-HART MERGE

Two old-line stove companies merged on December 31, 1957. By way of an exchange of stock, the Vulcan-Hart Mfg. Co., Inc., Louisville, Ky. was merged into the Globe American Corp., Kokomo, Ind., the surviving company.

New officers are: Alden P. Chester, chairman of the board; Wendell M. Smock, president; J. R. Comer, v-p in charge of the Macomb, Illinois Division; John E. Real, v-p in charge of the Kokomo plant; C. C. Coy, v-p and treas., Louisville; and Emory L. Brown, Jr., v-p in charge of the new Vulcan plant in Baltimore, Md.

Vulcan-Hart produces a complete line of gas and electrical commercial cooking and other equipment for mass feeding in Louisville, Ky., and Baltimore, Md. Globe American has manufactured domestic gas and electric ranges, brooder stoves, etc. in Kokomo, Ind., and Macomb, Ill.

The main executive office of Globe American Corp. is in Louisville.

PALLETAINERS

can do so
many jobs
SO WELL!

Here are eight good examples of how USP Palletainers are streamlining materials handling methods across the nation.



The photo illustrations speak for themselves. No two applications alike, yet Palletainers readily provide the means for safer, more efficient handling, storage and transport.

USP Palletainers are available in a broad range of standardized types and sizes to meet every conceivable industrial need with complete assurance of safety and dependability. Palletainers famous construction of reinforced, electro-welded steel rods, interlocked channel beam base frame, steel stacking legs, positive action locks . . . all these, plus their exclusive "flat-fold" features that save you 75% of storage space on empties and lower return-shipping rates. Only USP Palletainers offer you all the benefits of safer unit-load handling. They save men, equipment and man hours—plus the functional improvements that consistently save your materials handling dollars—day after day.

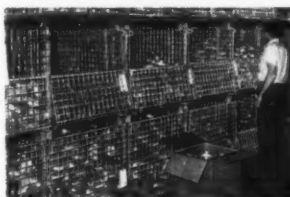
Remember . . . only USP Palletainers can do so many jobs so well—so economically.



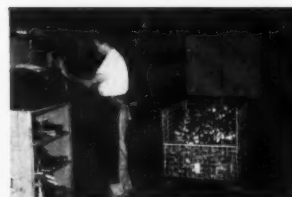
Palletainers simplify housekeeping — indoors or out! Palletainers have effectively and economically replaced barrel, box and storage bin equipment.



Palletainers are well known to the food freezing and processing industries because of their aeration and sanitation factors.



Palletainers (warehouse type) afford a highly versatile "parts bin" arrangement. May be opened or closed without affecting strength and rigidity of stack.



Palletainers speed most machine and production line operations. End gate eliminates long reach and products stay clean and neat.



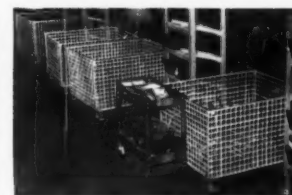
Palletainers are easily and accurately maneuvered. 8-way entry feature saves time and operating space. Wider stacking leg affords stacking safety.



Bearing plate Palletainers are often preferred because of their broad, inter-welded plate base which spreads load evenly over critical floor areas.



Bulk-Lode Palletainer with liner delivers fine materials, chemicals, pellets, even liquids, efficiently and economically. Another answer to safe, sure shipment.



Palletainers on the assembly line assure an ample supply of the right parts at the right time. They're easily handled—the answer to smoother line operation.



Bulk-Lode
2000-4000-6000 lb.
capacities



Warehouse
3000-4000 lb.
capacities



Hi-Lode
2000-4000-6000 lb.
capacities



Bearing Plate
2000-4000-6000 lb.
capacities

PALLETAINERS



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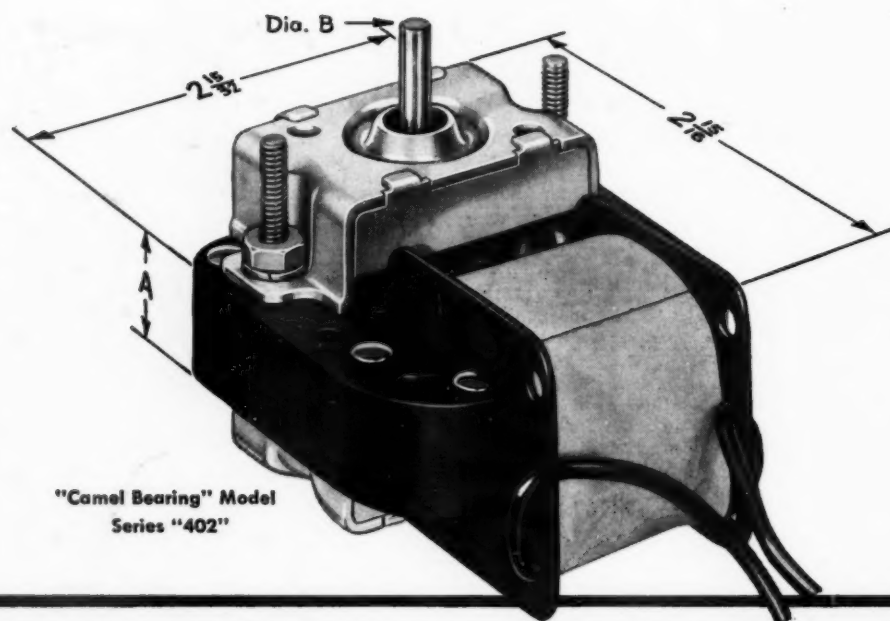
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☐ Please have your nearest representative contact me.

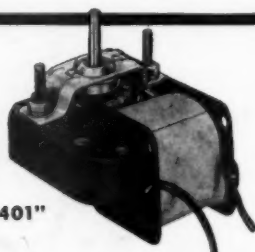




"Camel Bearing" Model
Series "402"

SPECIFY SORENG SHADED-POLE MOTORS

Where Economical, TROUBLE-FREE Operation is a Must



Series "401"

Series "401" for Standard Life Applications

Here's a tough, durable Shaded-Pole Motor. The "401" has positive aligned bearings with self-aligning features and an open-skeleton frame for effective heat dissipation. You have your choice of 12 models. You'll find a "401" Shaded-Pole Motor that meets your needs exactly.

Series "402" with New CAMEL BEARING Holds Lubricant Thousands of Hours Longer

The "402" Shaded-Pole Motor is built to last. It's a rugged little powerhouse with an EXTRA long life due to its exclusive, new CAMEL BEARING design. This special bearing bracket provides automatic, positive oil circulation even under high temperatures. Oil is constantly feeding into bearing cavities as operating conditions demand.

The "402" is made of high quality, silicon steel. It's versatile, too! The rotor bracket is easily removed so that the motor can be adapted to a variety of field applications. Standard mounting holes make it interchangeable with other motors. Range of 12 models cover all types of applications.

MODEL NO.'S (*)	402-10 402-11 401-10 401-11	402-20 402-21 401-20 401-21	402-30 402-31 401-30 401-31	402-40 402-41 401-40 401-41	402-50 402-51 401-50 401-51	402-60 402-61 401-60 401-61
VOLTS	115	115	115	115	115	115
FREQUENCY	60	60	50	60	60	60
AMPERE—NO LOAD	0.31	0.42	0.55	0.64	0.97	1.31
WATTS—NO LOAD	13.5	19	24	27.7	40	53
* P M—NO LOAD	3400	3480	3500	3570	3560	3550
MAX. HP. OUTPUT(†)	1/500	1/200	1/125	1/75	1/50	1/40
START TORQUE OZ. IN.	0.59	1.4	2.3	2.3	2.3	4.9
WALLED WATTS	18	29	40	45	68	98
STACK WIDTH "A"	3 1/2"	3 1/2"	3 1/2"	3 1/2"	1 1/2"	1 1/2"
SHAFT DIA. "B"	0.182	0.182	0.182	0.182	0.2178	0.2178
WEIGHT—POUNDS	0.8	1.3	1.4	1.4	1.9	2.4

Send for your copy of Soreng's new booklet on Shaded-Pole Motors. It contains drawings, technical data and specific applications.



SORENG SHADED-POLE MOTORS HAVE OVER 140 PRODUCT APPLICATIONS

Typical Applications include: springwires, gear, chain, rubber belt and friction drives or, to move high velocity, heater or sirocco air.

NOTES:

1. HP RATING AT 3000 RPM—CONTINUOUS DUTY FAN LOAD
2. ALL NUMBERS ENDING IN "0" DENOTE CLOCKWISE SHAFT ROTATION
ALL NUMBERS ENDING IN "1" DENOTE COUNTER-CLOCKWISE SHAFT ROTATION
3. 402—LONG LIFE SERIES
4. 401—STANDARD LIFE SERIES
5. LEADS—#20AWG 2" LONG LEAD WIRE THERMO PLASTIC



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